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The Effects Of Cognates On Receptive And Expressive Language Among Typically Developing Preschool Second Language-Learners

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THE EFFECTS OF COGNATES ON RECEPTIVE AND EXPRESSIVE LANGUAGE
AMONG TYPICALLY DEVELOPING PRESCHOOL SECOND LANGUAGE-LEARNERS

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AMONG TYPICALLY DEVELOPING PRESCHOOL SECOND LANGUAGE-LEARNERS

by

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THESIS

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Abstract

This exploratory study considers the facilitating effects of cognates across language of intervention, seeking to assess potential cross-language generalizations among typically developing preschool bilinguals. Nine bilingual, English-Spanish speakers of preschool age were assigned to one of three experimental groups (an English only group, a Spanish only group, and a bilingual group) or to a control condition. Children in the experimental groups were introduced to a vocabulary intervention that incorporated cognates and non-cognates. Analysis of data suggests the absence of a cognate advantage among preschool age children; furthermore limiting any possible cross-language generalizations. It is plausible to suspect that age may be a contributing factor to cognate facilitating effects. Other aspects related to cognition, existent metalinguistic skills, present development of phonological skills, and even degree of literacy instruction could also impact the effectiveness of these types of interventions. There is a need to assess potential relationships among contributing factors impacting vocabulary development within groups of young bilingual speakers. It is also indispensable to develop effective methods of intervention in supporting the lexical growth of young second language learners.

Keywords: preschool bilinguals, cognates, non-cognates, cognate advantage, cross-language generalizations

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Chapter 1: Introduction

1.1 Cognates: Their Definition and Relevance to Children

As second language learners (L2) encounter new lexical labels, they compare novel words to their first language (L1) translation. In doing so, they automatically map recently acquired lexical labels onto familiar L1 concepts (De Groot & Keijzer, 2000). The acquisition of new lexical items is then seen to rely heavily on cross-language associations, with a close interaction of both language systems of the L2 learner (Costa, Santesteban, & Caño, 2005). Across language systems, words frequently share meaning. The labels “forest” and “bosque” are one such example. There is a subset of words, however, that may share similarities other than meaning – “independence” and “independencia,” for instance. Other than their similar meaning, these words also share a resemblance of phonological and orthographical features. Distinguished by comparable form and meaning, these lexical labels are defined as cognates (Costa, Santesteban, & Caño, 2005). With an overlap of semantics, phonology, as well as orthography, cognates are well known to support language performance among adult bilinguals (Costa, Caramazza, & Sebastián-Gallés, 2000; Van Assche, Duyck, Hartsuiker, & Diependaele, 2009). Based on their phonological commonalities, some of the research also indicates vocabulary acquisition through cognates may be seen to decrease demands, especially noted during the early stages of L2 development (Comesaña, Soares, Sánchez-Casas, & Lima, 2012; Cunningham & Graham, 2000; Lubliner & Hiebert, 2011).

In spite of the ample evidence indicating that cognates can aid language performance among adult L2 users by supporting lexical acquisition and processing (Costa, Caramazza, & Sebastián-Gallés, 2000; Costa, Santesteban, & Caño, 2005; Dijkstra, Miwa, Brummelhuis, Sappelli, and Baayen, 2010; Hoshino & Kroll, 2008; Roberts & Deslauriers, 1999; Van Assche,

Duyck, Hartsuiker, & Diependaele, 2009), there is not enough research exploring the benefits of cognate words among bilingual children. The available literature is also diverging with regards to its findings. While there is research that suggests limitations to cognate effects among young bilinguals (Kelley & Kohnert, 2012; Proctor & Mo, 2009), there is evidence which poses a degree of susceptibility to the presence of these words, already observed at very young ages in children (Brenders, Van Hell, & Dijkstra, 2011; Perez, Peña, & Bedore, 2010). Considering the facilitative effect of cognates among adult L2 users, cognates potential support for vocabulary development and the paucity of research assessing the benefit of these words among young bilinguals, this investigation explores cognate effects on lexical growth among a small group of bilingual children. This paper also reviews the available literature discussing cognate effects in terms of lexical processing as well as language development.

1.2 Facilitative Cognate Features and their Variance

As proposed by Kelley & Kohnert (2012), research supports what could be described as a cognate advantage, a result of shared lexical representation when words overlap in terms of semantic, phonological, and orthographical features. L2 learners, activating lexical information requiring use of only one language, may not only trigger the language of choice, but rather their L1 as well (Brenders, Van Hell, & Dijkstra, 2011; Hall, 2002; Schwartz, Kroll, & Diaz, 2007; Van Assche, Duyck, Hartsuiker, & Diependaele, 2009). Since cognates present considerable overlap in features, they can be easily associated at the lexical level, facilitating lexical processing and language tasks (Brysbaert & Duyck, 2010). Still, any discrepancy affecting the optimal overlap of a cognate's features may be seen to decrease its facilitative effects (Sunderman & Schwartz, 2008).

Among cognates, semantic overlap falls on a continuum and cognates that share full overlap in meaning may constitute more solid connections. Some cognates may actually share one hundred percent overlap “art” and “arte,” for example. Meanwhile, other words might only be etymologically related – “assist” in English to imply helping someone and “asistir” in Spanish to imply attending a function. Words with only limited overlap in meaning can be defined as partial cognates. Along the continuum of cognates, there are also words that may seemingly share meaning, but can be deceptively misleading by their outstanding similarities in form (Sunderman & Schwartz, 2008; Lubliner & Hiebert, 2011). These types of words, known as false cognates, diverge with regards to meaning – “rope,” meaning a cord or string to tie things in English, and “ropa” in Spanish, used to refer to items of clothing – and may inhibit performance among bilingual speakers (Brybaert & Duyck, 2010).

In terms of phonology, hearing a word with acoustic resemblance can activate a range of lexical items displaying sound similarities. Activity can be seen to take place within and across language systems, generating competition for input during lexical processing tasks (Brybaert, M., & Duyck, 2010). With regards to phonological similarity, many cognates are found to share unambiguous transparent relationships– “nectar” in English – [nektər] and “nectar” in Spanish – [nektər]. Others, yet, may be characterized by varying degrees of phonological overlap – “grain” in English – [grein] and “grano” in Spanish – [ˈgrano], for example. Though still maintaining a degree of phonological resemblance and to an extent still supporting word retrieval, (Dijkstra, Miwa, Brummelhuis, Sappelli, and Baayen, 2010), any discrepancies among cognate features can be seen to interfere with optimal lexical transfer (Sunderman & Schwartz, 2008).

The majority of English-Spanish cognates are more similar in terms of orthography than phonology, differing by vowel production and syllable stress. Yet, as cognates vary in terms of

phonology as well as semantic relatedness, they also vary with regards to orthographic similarity. This is considerably important because orthographic transparency impacts the ease in which bilinguals can identify cognate pairs. With regards to orthographic transparency, even minimal spelling differences can hinder individuals' abilities to effectively identify cognates (De Groot & Keijzer, 2000; Lubliner & Hierbert, 2011). Upon encountering the written form of a word that word not only activates the word being presented, but also a host of other resembling words in either language. These different representations are then set off to compete with each other until the desired target representation dominates the activation levels of all other words (Brybaert, M., & Duyck, 2010). Since the accurate recognition of cognates appears to be highly related to the orthographic transparency of these words, any digression in terms of their written form can potentially limit the facilitative effects of these words (De Groot & Keijzer, 2000; Lubliner & Hierbert, 2011).

1.3 Cognates on Word Recognition and Production

Current research exploring lexical association among bilinguals points to the existence of an integrated conceptual base with the presence of two independent lexical systems (Comesaña, Soares, Sánchez-Casas, & Lima, 2012). Cognates, sharing substantial overlap of features, with a common conceptual basis can be easily associated at the lexical level (Brybaert & Duyck, 2010). Deriving a measure of language transfer, these words can support cross-language activation of lexical items, supporting lexical retrieval within the target and non-target language (Costa, Santesteban, and Caño, 2005). Lemhöfer et al. (2008) suggests a facilitative effect of cognates supporting not only ease, but also accuracy of word recognition. With regards to lexical production, these types of words also increase naming accuracy, as they also reduce latencies for word retrieval (Costa, Santesteban, and Caño, 2005; Hoshino & Kroll, 2008;

Roberts & Deslauriers, 1999). Exposure to cognates can also be seen to facilitate vocabulary development (De Groot & Keijzer, 2000). When L2 learners expand their vocabulary knowledge through exposure to cognates, they rely on lexical information already in place, as opposed to having to construct an entirely new lexical basis. Through cognates, retention of an L2 form can require less effort, given that a word form may already be in place in the L1 lexicon (Hall, 2002).

1.4 Cognate Effects on Reading

Frequently among bilinguals, vocabulary acquisition can result in an uneven distribution of words across languages, with many of the words learned either uniquely in the L1 or else the bilingual's L2. Considering the overlap of codes shared by cognate items and their facilitative effects in terms of lexical acquisition, cognates can be seen to pose an advantage, promoting L1 development as well as L2 emergence (Lubliner & Hiebert, 2011). According to Lubliner and Hiebert (2011), mastery of vocabulary for basic communication occurs rather quickly in individuals learning a second language. However, a considerable number of second language learners may lag in acquisition of English academic vocabulary, where insufficient knowledge in this respect could potentially hinder reading and overall school achievement (Manyak & Bouchereau Bauer, 2009). Sunderman & Schwartz (2008) further explain that in terms of cognates, L2 learners exploit similar traits characteristic of these words (semantic, phonological, and orthographic), and transfer lexical knowledge from their first language to facilitate vocabulary acquisition in their L2.

Developing depth of vocabulary knowledge in a child's L1 is also likely to support literacy skills in the child's L2. Among bilinguals reading a word in one language can activate word representations from the target and non-target codes (Sunderman & Schwartz, 2008). This

can be seen to positively affect cognates, considering that these words share an extensive overlap of codes, potentially heightening activations which are already likely to occur (Van Assche, Duyck, Hartsuiker, & Diependaele, 2009; Proctor & Mo, 2009). Though cognates may apparently pervade in terms of their effects, research also suggests that a cognate awareness may be developmentally constrained. Individuals' levels of language proficiency along with factors related to the cognate status of words are seen to restrain the benefits imposed by cognates (Proctor & Mo, 2009).

1.5 Theoretical Accounts: The Revised Hierarchical Model and the Bilingual

Interactive Activation Models

To understand how cognates facilitate lexical access, it is reasonable to consider models of lexical organization. Lexical access, as defined by the literature, may be described as the process by which one activates an array of word choices particular to a context. Among bilinguals, it also describes retrieval and access of appropriate word choices within the desired language. Some models of bilingual language processing, such as the Revised Hierarchical Model (RHM), claim separation of lexical systems with a single consolidated conceptual base (Brysbaert & Duyck, 2010). Others, like the Bilingual Interactive Activation Model (BIA), propose an integrated lexicon. Within this model, lexical access depends on competition of input generated from both language systems with language specific nodes actively inhibiting and selecting target lexical forms (Van Heuven, Dijkstra, & Grainger, 1998).

As viewed by the RHM model, lexical access can be defined through an interplay of word phonology and semantics (Costa, Santesteban, & Caño, 2005). Costa et al. (2005) further propose mechanisms of word selection through a cascade-sequencing fashion. As the model suggests, potential lexical candidates (words considered compatible with meaning of concepts

one wishes to express) activate word forms prior to explicitly selecting any prospective candidates. This model envisions lexical access through a series of communication exchanges, dependent on various informational nodes. For example, if wishing to produce the word CAT, phonological information pertaining to that particular word would be seen to rely activation to a series of closely related lexical representations: fat, rat, sat, mat, and cap as a few potential considerations.

Continued selection is also dependent on compatibility of lexical representations with ideas the speaker seeks to convey. On activation, the above lexical representations continue to forward additional information; extending access to further specified phonological segments. As they proceed through selection, strings of phonemes continue to be filtered. Those with the highest levels of activation are seen to reinforce much more specified targets. Targets are chosen on the basis of plausible lexical representations. On final selection, a word representation with the highest thresholds of activation is conclusively chosen (Costa, Santesteban, & Caño, 2005). As word selection relies on an unremitting flow of conceptual/semantic and phonological information, the overlap of traits characteristic of cognates can only enhance key mechanisms essential to word retrieval (Peterson & Savoy, 1998).

The BIA model poses an explanation for bilingual visual word recognition. This model incorporates the idea of competition. Competition is based on bottom-up, non-language selective mechanisms of processing and top-down processing mechanisms that are language-specific. In other words, upon exposure to a string of letters via printed form, these letters can activate words from both language codes of the bilingual. This process is representative of bottom-up activation. Through top-down processing, language nodes storing words specific to each language selectively inhibit activity of words pertaining to the non-target code. For example, as

the Spanish-English bilingual visually encounters the word “record”, he may also activate “recordar” – meaning to remember in English. Both of these words may subsequently compete as target lexical input intended for selection. Language-specific nodes may also initiate activity, comparing letter strings to word labels and concepts. Once a match is established, the word “record” will highlight activation within its corresponding English-language node. At this point, this same node will also suppress activation of any other potential lexical forms pertaining to the Spanish language node. As seen, the BIA model can gage information in a parallel mode, regardless of the bilingual’s intention to use only one of his language codes (Van Heuven, Dijkstra, & Grainger, 1998). With shared overlap of meaning and form, cognates can boost and reinforce activations facilitating the access of lexicon and its retrieval along this process (Sunderman & Schwartz, 2008).

1.6 Bilingual Aphasia and Effects of Cognate Exposure

Among bilinguals with aphasia, the research suggests that manipulation of cognates in language treatments may positively influence language performance. Cognate effects are especially noted as it terms of word production among individuals diagnosed with productive aphasias. When presented with cognate words, individuals with aphasia demonstrate greater accuracy and speed of word retrieval during tasks entailing confrontational naming. Cognates may then be seen as imputing resistance, counteracting momentary malfunction currently affecting the adequacy of lexical retrieval (Costa, Santesteban, and Caño, 2005; Hoshino & Kroll, 2007; Roberts & Deslauriers, 1999).

As evidenced by the research, the reduced naming latencies observed for cognates may be connected to mechanisms of lexical processing, possibly displaying differential sensitivity to these particular types of words. As already established, when compared to non-cognate words,

cognates maintain shared conceptual and phonological representation. With comparable shared features, seeking activity of a cognate word in a specified language may actually trigger lexical activity across both language systems. With words' overlap of concept and form, it is also easier to access a representation just recently triggered. The connections between semantic and phonological features distinguishing cognate words are not only crucial to their facilitative effects because these components relate in a highly interactive manner as they are also bidirectional in nature. Lexical selection ultimately depends on a backward and forward flow of activation, engaging semantic, lexical, and phonological nodes of information (Costa, Santesteban, and Caño, 2005, 97).

1.7 Lexical Development among Bilingual Children

As children receive lexical input, they organize this information based on the phonological and semantic features of words. Then as they establish strong patterns of word representations, they also form associative connections, integrating various lexical items in clusters or groups of words. There are very few studies that analyze the processes and mechanisms of language development among second language learners and even less specifically addressing lexical representation among young emerging bilinguals (Comesaña, Soares, Sánchez-Casas, & Lima, 2012). Upon examining the development of language among bilingual children, several aspects must be considered including age of L2 acquisition, L2 proficiency level, the similarity between the bilingual's two languages, proficiency and dominance of L1 and L2, the specific modality under evaluation (comprehension vs. production), and the particular type of stimuli used to elicit the language (cognates vs. non-cognates) (Li, 2009).

As Li et al. (2009) explains, considering their exposure to two languages from the beginning, simultaneous bilinguals may easily establish an initial distinction between each of their two lexicons. However, the organization of lexicon among sequential bilinguals (individuals acquiring their L1 first and L2 later) may differ in its trajectory, clearly modulated by an age effect. While still sustaining plasticity, early introduction of a second language may support neuronal restructure, permitting lexical space for independent lexical representations. In contrast, upon late L2 introduction, plasticity may also decrease, now characterized by an engrained L1 lexical system that could potentially obstruct the presence of a single and independent L2 system of lexicon. Among sequential L2 learners, vocabulary development may then be described as depending extensively on associative connections, established on grounded L1 word representations, which are continuously exploited for the growth of the L2.

As language users acquire new words, they initially identify these as novel units, which must subsequently be mapped to specific meanings. Word meaning, however, can only be attained as the individual acquires an understanding regarding the appropriate use of words based on their various applicable contexts (Li, 2009; Zhao and Li, 2010). To increase depth of vocabulary, children require frequent and repeated exposure to words. However, the development of lexicon for bilingual children demands integration of two different codes, with simultaneous acknowledgment of semantic and conceptual features characterizing words of each language system. Since the bilingual child receives language input distributed across two different codes, it is also likely that the emerging young bilingual may receive reduced input from each individual language, when compared to children raised in an exclusively monolingual environment (Gollan, Montoya, Fennema-Notestine, & Morris, 2005; Li, Bedore, Peña, & Fiestas, 2013).

Viewed from a simple perspective, bilinguals might experience some difficulties retrieving lexical items, merely as a result of their split usage of two different codes (Gollan, Montoya, Fennema-Notestine, & Morris, 2005). Now, this is not to convey marginal flexibility in terms of lexical acquisition for bilinguals, but instead to reflect what may be considered as a more laborious process among bilingual learners (Li, Bedore, Peña, & Fiestas, 2013). In considering commonalities shared by cognates (semantic, phonological, or orthographic) across a bilingual's two systems of language, cognates can be seen to support overall lexical acquisition, especially benefiting the developing bilingual child (De Groot & Keijzer, 2000).

1.8 Cognate Effects among Young Bilinguals

Presently, there is ample research exploring the facilitative effects of cognates among adult bilingual speakers (Costa, Caramazza, & Sebastián-Gallés, 2000; Costa, Santesteban, and Caño, 2005; Dijkstra, Miwa, Brummelhuis, Sappelli, and Baayen, 2010; Hoshino & Kroll, 2008; Roberts & Deslauriers, 1999; Van Assche, Duyck, Hartsuiker, & Diependaele, 2009). Yet, the question concerns the following: Is this same cognate advantage manifested among adults, equally capable of supporting the development of language among young bilingual children? Minimal, but available evidence suggests a facilitative effect from cognates. However, a range of factors directly related to young L2 learners may also limit cognate effects. For instance, Brenders et al. (2011) points to a cognate advantage evident among young bilinguals affecting lexical tasks even in early stages of children's L2 development. Another study conducted by Perez et al. (2010) introduced cognates to a group of first-grade and kindergarten bilinguals and concluded sensitivity to the presence of this type of words. As reported by the authors, children exposed to more Spanish accurately recognized more of the English cognates of Spanish words than children exposed to more balanced amounts of English and Spanish, or children with greater

exposure to English. In general, the children displayed a sense of awareness to the presence of cognates, however subject to language exposure, implying a transfer of vocabulary knowledge from a child's L1 to receptive vocabulary in English.

In spite of the available research supporting some sensitivity to the presence of cognates among young L2 learners, there is also contrasting evidence indicating that this effect appears to be modulated by the individual's current age of learning (Proctor & Mo, 2009). Research conducted among elementary and middle school children (8-13 years of age), though still sustaining the presence of a cognate advantage (as seen on tasks involving word recognition and naming), reveals limitations imposed by the bilingual's age, current level of academic skills (emphasizing early literacy instruction and development of phonological awareness) and present development of cognition (Kelley & Kohnert, 2012). Hall (2002), exploring a parasitic model of vocabulary development, suggested that maturational, affective, environmental, and motivational factors might collectively contribute to language learning. Automatic cognitive processes may also play a critical role impacting the acquisition of language.

Some of the literature also suggests that cognate effects may be primarily noted on a child's second language, minimally observed on the learner's native tongue (Tonzar, Lotto, & Job, 2009). For example, Van Assche et al. (2009) explains that unbalanced bilinguals may find it difficult to turn off their native/dominant language, resulting in the L1 influencing the processing of individual's L2. Language performance among bilinguals, however, may change over time. There are studies that have demonstrated a shift in favor of L2 by inhibiting L1 among intermediate L2 speakers. With evolving proficiency, as the evidence appears to point out, individuals acquire a more skilled use of their L2 with positive changes enhancing

automaticity of the second system of language, which eventually attains closer resemblance to individual's first tongue (Kroll, Van Hell, Tokowicz, & Green, 2010).

Aside from being regulated by age of learning, bilinguals have to be able to pair cognates to benefit from exposure to these kinds of words. In children, phonological similarities are particularly important. Young L2 learners, who are not yet literate in their native language, cannot benefit from orthographic similarities. For them, the use of cognates may be overly dependent on representations of phonological memory (Lubliner & Hierbert, 2011; Costa, Santesteban, and Caño, 2005). Young children, therefore, should be instructed in recognizing phonological shifts affecting transparency between cognate items (Lubliner & Hiebert, 2011). Explicit instruction on recognition of cognates (teaching children to identify similar patterns and recognize shared as well as diverging word meanings) should also support the proper use of these words (Manyak & Bouchereau Bauer, 2009; Montelongo, Hernandez, & Herter, 2011; Lubliner & Hiebert, 2011; Sunderman & Schwartz, 2008). Growing L2 proficiency and well-established language and literacy systems relate to increasing metalinguistic insight, supporting optimal usage of cognate words (Cunningham and Graham, 2000; Proctor & Mo, 2009; Manyak & Bouchereau Bauer, 2009).

Based on an evaluation of the research, there appears to be consistent evidence demonstrating the presence of a cognate advantage facilitating lexical access and recognition among adult-bilinguals speakers. Research exploring the presence of this same cognate advantage among young bilinguals, however, is rather scarce. The available evidence is also conflictive. Some of the literature suggests a cognate advantage already present among rather young L2 users. Other studies maintain cognate effects to be strongly connected to age of learning. A series of additional factors, also frequently tied to a child's trajectory of language

development – academic skills, cognition, and metalinguistic awareness, for example – are seen to regulate processing of cognate words (Kelley & Kohnert, 2012; Cunningham & Graham, 2000; Proctor & Mo, 2009). The current investigation was undertaken in light of the available evidence and the lack of research assessing cognate effects among young bilinguals. This study explores the effects of vocabulary measures integrating cognates as a means to support overall lexical growth. The effects of cognates among typically developing bilingual preschool speakers of English and Spanish are analyzed throughout this research. Cognate effects are measured across word production and recognition. The study also considers cognate facilitating effects as observed across language of intervention. Potential cross-language generalizations are furthermore noted.

Chapter 2: Method

2.1 Recruitment of participants

Adhering by the procedures set forth by the University of Texas at El Paso Institutional Review Board, we obtained approval to conduct this project. Participants were recruited from a Texas early literacy program conducted in the El Paso area. Parents enrolled in a non-profit parent-education program were invited to have their children participate in this research project. The children were also recipients of day-care services, attending day-care facilities supported by this same program. These facilities functioned within the installations of two elementary schools from the El Paso, Texas area. Upon parental written consent and under full voluntary participation, children were recruited to form part of our study. Prior to consenting to participation, parents were informed with regards to the purposes of this study and all procedures implemented to carry out this intervention.

2.2 Participants

Twelve children were originally recruited for the study. Three of the children were later removed from participation, resulting in a total of 9 participants. One subject was removed due to non-compliance. The other two either moved away or withdrew from the preschool program. All participating children were enrolled part time at a preschool/day-care program, which was funded by a non-profit education agency supporting economically disadvantaged families. All participants were of Hispanic origin and bilingual speakers of English and Spanish. As a group, participants in the study were Spanish dominant, with an estimated percentage of Spanish usage at around 72.55%, and a group's percentage of English input averaging at around a 27.44%.

Participants in the study were assigned to one of four different groups: a bilingual group, an English only group, a Spanish only group, or to a control condition. Children in the study averaged around 40.4 months of age (3;4 years of age with an SD of 5 months). Four of the participants were females; the remaining five were males. Eight of the children were considered to be typically developing, with no health concerns currently reported. One of the participants, however, was receiving speech and language services. Table 1 summarizes information describing this study's participants' profile. Information regarding participants' age, condition/group assignment, percentage of English and Spanish usage (deduced from ratings obtained from initial parent questionnaires, linked to percentages of English input and output), initial age of English exposure, and proficiency ratings (as determined by the parents) for both languages are presented.

Table 1

Participants' Language Information and Age

Group ID	Average age in months	Average percentage of English usage	Average percentage of Spanish usage	Average of initial age of English exposure	English Language Proficiency	Spanish Language Proficiency
Bilingual	43	12%	88%	3	1	5
English	39	24%	76%	1	2	4
Spanish	40	28%	72%	2	2	4
Control	43	68%	32%	0	3	2

Note. The rating scale used to establish language proficiency integrated values with numbers ranging from 0-5, with 0 representing an absence of the language, 1 indicating use of just a few words, 2 denoting a limited range of word usage, 3 signifying use of some words, 4 describing use of many words, and 5 representing an extensive use of vocabulary.

As stated, participants in this study were distributed across four different conditions: a bilingual intervention group, an English intervention group, a Spanish intervention group, and a control condition. The distribution of participants was based on availability, as all children attended day-care/preschool facilities on different days and hours. Three master level and two undergraduate students conducted each of these four different groups. All groups were conducted separately and held according to their location.

2.3 Materials

Measures for pretest and posttest assessed knowledge of vocabulary items introduced throughout the study. Evaluating the effects of cognates on vocabulary acquisition, the study manipulated 20 English and 20 Spanish lexical items. Of each set of the 20 English and 20 Spanish vocabulary items, 10 of the words in each set consisted of cognates. The remaining 10 words of each of these sets were labeled as non-cognates. As defined by this study, words defined as cognates were comprised of pairs of English and Spanish lexical items, sharing similar semantic, orthographic, and phonological components – “insects” and “insectos,” for example. Non-cognates words shared similar meaning in the absence of orthographic and/or phonological resemblance.

All stimulus words used in this study were illustrated and sought to elicit identification and naming of lexical items. Different illustrations were chosen to distinguish receptive from expressive measures. Measures for receptive vocabulary presented target words along with three foil items. Expressive measures consisted of single pictures illustrating target vocabulary words. Lexical items were selected from two different bilingual texts, *The Lion and the Mouse/El Ratón y el León* (Dominguez, 2007) and *The Grasshopper and the Ants/El Saltamontes y las Hormigas* (Bailer, 2007). Words chosen from each book incorporated English and Spanish vocabulary

items, including cognate and non-cognate words. The books used in this study, along with their respective contents, were consistent with the participants' levels of development and cognition.

2.4 Cognate Status of Items

To classify target words as either cognate or non-cognate, a specific value was assigned to each of the stimulus items. Assigned values for each of the target vocabulary items were adapted from Kelley & Kohnert (2012), using as guidance this study's rating scale for cognates, the *Crosslinguistic Overlap Scale for Phonology (COSP)* (See Appendix A and B for the adapted scale and the list of all target words with assigned scoring values). Based on this scale, each Spanish-English word pair was assigned a specific value ranking from 0-10, with 0 indicating an absence of phonological similarity, and 10 denoting a pair with nearly identical phonological overlap. Numbers ranging from 0-4 identified words with a non-cognate ranking. Numerical values ranging from 5-10 identified cognate words with various degrees of cognateness.

Four basic features, outlined by the COSP scale, were considered when determining the cognate status of stimulus words. These features included: shared initial sound between pairs of words, shared vowels, shared consonants, and shared number of syllables. If a pair of potential cognate words, for example, shared similar initial consonant sounds (where initial sounds shared in common at least two of all three possible sound features – place, voice, and/or manner), then this pair of words might have been assigned a score ranging between 1-3, as determined by the degree of shared features apparent between prospective word candidates. With successive analysis of words, other features were also accounted for (i.e., shared vowels, shared number of syllables, etc.), helping to determine the cognate status of lexical items (Kelley & Kohnert, 2012).

In assigning a numerical value denoting cognate status for each of the stimulus items, two graduate student-clinicians, bilingual speakers of both English and Spanish, rated and scored each of the target words. English-Spanish word pairs were analyzed through broad phonetic transcription (Kelley & Kohnert, 2012). Acknowledging that vowels differ in number between the English and Spanish sound systems, establishing a correspondence between vowels required a systematic analysis of association between English and Spanish sounds. Student-clinicians, ranking items to verify words' cognateness, compared both of the vowel systems pertaining to each of the two target languages. A perceptual approximation of sound features permitted rating clinicians to compare and subsequently pair up English and Spanish vowels, given consideration to fine, perceptual similitudes distinguishing pairs selected. The overall analysis performed by each student-clinician served to establish inter-rater reliability on the assignment of cognate status for each of the stimulus words.

2.5 Cognate Scoring Reliability Measures

To ensure that stimulus items selected for this intervention met the required criteria to be labeled as cognates, two student-clinicians initially analyzed all target words independently. They also had to arrive to a point of agreement, reflecting their final consensus regarding the status of stimulus words (items being designated as either cognate or non-cognate). Ultimately, final consensus regarding scoring of items and reflecting agreement between student-clinicians was estimated at an overall 95%.

2.6 Study Design

This study was an exploratory study, and it incorporated a quasi-experimental design integrating a convenience sample. The intervention consisted of two different phases, introducing two different sets of target, lexical items. The first phase introduced vocabulary

instruction using the following book: *The Lion and the Mouse/El Ratón y el León* (Dominguez, 2007). Phase two presented vocabulary items that had been selected from a second text: *The Grasshopper and the Ants/El Saltamontes y las Hormigas* (Bailer, 2007).

2.7 Pretest and Posttest Measures

2.7.1 Receptive and Expressive Vocabulary Measures

The investigation incorporated pretest and posttest measures, assessing vocabulary knowledge prior to initiation and following conclusion of this intervention. Neither pretest nor posttest measures restricted the amount of time allotted for participants' responses. Measures included word recognition and naming tasks, involving usage of both treatment languages, English and Spanish. Tasks for word recognition assessed receptive vocabulary growth. Assessment of receptive vocabulary required students to point to items as the clinician used prompts requiring participants to identify target words. Naming tasks measured changes denoting expressive use in terms of target, lexical items. These type of tasks required participants to verbally label several illustrations, which were inclusive of target lexical items.

2.7.2 Parent Questionnaire

Parent questionnaires were also compiled. These were adapted from language measures used by Peña et al. (2014). The questionnaires used in this study were used to establish the participants' language use, initial age of language exposure, and language dominance. Based on these language measures, parents rated their children's use of both languages, along with proficiency of the children in both, English and Spanish. This same questionnaire was also used to derive a measure of language use and exposure, considering both of the target languages.

2.8 Intervention

The intervention in this study consisted of a total of eight 50-minute sessions, imparted twice a week through the course of 4 weeks, with all sessions conducted in the participants' pre-k classrooms. To evaluate this study's intervention, four different groups were established: an English only group, a Spanish only group, a bilingual group, and a control condition. The language of intervention was randomly assigned to each of these groups. Three student clinicians and two undergraduate speech-language pathology students provided the intervention for all conditions. Each of the groups in this study participated in pretesting, 2 intervention sessions per week for a total of 4 consecutive weeks, and a final posttest session. The sessions were audio and video recorded for later analysis.

The bilingual, English, and Spanish groups targeted vocabulary acquisition of the lexical items selected for this intervention. Scripts were created to provide the outline of the interventions sessions (see Appendix D for a sample script). They included broad definitions of the words introduced in the study, presenting general guidelines to assist with instruction of the vocabulary. The scripts listed all words and provided definitions in English and Spanish. Though the children were not limited to specific use of either language, the clinicians conducted the intervention according to the language of instruction assigned to each group. Therefore, the intervention within the bilingual group was conducted alternating between English and Spanish. The English group was restricted to exclusive use of English. The Spanish group was conducted using only Spanish. The control condition, excluded from this intervention, focused on instruction of mathematical concepts, shapes, and numbers.

A shared reading activity integrating both texts used in this intervention (*The Lion and the Mouse/El Ratón y el León* and *The Grasshopper and the Ants/El Saltamontes y Las*

Hormigas) provided the forum to target vocabulary items chosen for this study. *The Lion and the Mouse/El Ratón y el León* was used during the first two weeks of the intervention. *The Grasshopper and the Ants/El Saltamontes y las Hormigas* was introduced during weeks three and four of this study. Investigators read, discussed, and provided instructions on the target lexical items within the context of both of these book selections. All activities planned sought to promote topic continuity, while reinforcing all concepts recently introduced. Each session also included vocabulary expansion activities. These activities required children to create vocabulary books, which they presented to peers in their groups. Through these activities, the children were also encouraged to use all words and concepts recently acquired through previous sessions.

2.9 Treatment Fidelity

To ensure adherence to treatment guidelines, scripts were employed during each of the sessions of this intervention (See Appendix D for a sample script). These served to establish and monitor the sequence of activities for each of the sessions. The scripts also provided broad definitions for each of the target words, guiding instruction of this intervention's lexical items. A partial observer attested to treatment fidelity by using time-sheets, insuring that all activities were incorporated and that these were covered within the specified time lapses. Treatment fidelity for this study was also measured with regards to alignment to ten different specifications (word review, expansion activities, feedback, etc.) (See Appendix C for treatment fidelity sheets). A maximum value of ten points was attainable upon meeting all intervention requirements. Each intervention session was video and audio recorded, permitting the necessary analysis to measure adherence to treatment fidelity. Based on adherence by each of the groups participating in this intervention, the scores were as follows: 10 points for the Bilingual group, 10 for the English, 9 for the Spanish, and 7 for the control condition.

2.10 Analysis of Data

This study analyzed the effects of a vocabulary intervention that manipulated cognate status in target words. The study assessed cognate effects on vocabulary acquisition, while targeting a group of preschool, bilingual children. Measures from pretest and posttest were analyzed to determine any perceived advantage in the acquisition of cognate words. Due to the small sample size of participants in this pilot study, the analysis of measures relied on the use of descriptive statistics. Results are discussed in terms of means and standard deviations. Though means are provided, the use of the standard deviations provide information about variability within treatment groups.

Chapter 3: Results

This investigation, implemented as an exploratory study, considered the facilitating effects of cognates across language of intervention, while it sought to assess potential cross-language generalizations among typically developing preschool bilinguals. Based on analysis of descriptive statistics (means and standard deviations), findings suggest the absence of a cognate advantage among preschool age children; also limiting any possible cross-language generalizations. An analysis integrating the use of descriptive statistics details this study's findings. (Refer to Tables 2-5 for a detailed analysis of findings).

3.1 Cognate and Non-cognate Values

3.1.1 Bilingual group

Within the bilingual group, in terms of measures for receptive recognition of cognate items, there were only slight increases from pretest to posttest (see Table 4). Changes from pretest to posttest did not exceed more than a 2 points difference. Unlike cognates, however, performance for non-cognate items actually exceeded this difference. For English receptive measures, non-cognates increased from pretest to posttest by a total of 3 points. In terms of Spanish receptive measures, average performance for Spanish non-cognates improved by a total of 6 points. Nonetheless, even as the mean for non-cognates indicated some gains from pretest to posttest, the standard deviation demonstrates some extent of variability in terms of pretest performance, which may then indicate that not all participants in this group might have been influenced to the same extent by the use of this intervention. With regards to measures analyzing effects on expressive performance, there were only minimal differences from pretest to posttest for naming of English items. As demonstrated by the group's average performance, expressive measures for Spanish, however, did demonstrate gains of at least 3

points, with comparable changes in performance between cognate and non-cognate words. A degree of variability observed for the posttest may also imply differential effects of cognates, indicating that not all participants might have been equally susceptible to this type of words.

Table 2

Bilingual Group Receptive and Expressive Means

	PRE		POST	
	C	NC	C	NC
Receptive				
English	4 (1.44)	4 (0)	5.50 (2.12)	7 (0)
Spanish	4 (1.41)	3 (1.41)	5.50 (3.53)	9 (0)
Expressive				
English	.00 (.000)	.00 (.000)	1.00 (.000)	1.00 (.000)
Spanish	.50 (.707)	.50 (.707)	3.50 (2.121)	3.50 (2.121)

Note. Standard deviations are found in the parenthesis. PRE = Pretest; Post = Posttest; C= Cognates; NC = Non-cognates. Bolding is used to indicate gains from pretest to posttest of more than 3 points in average.

3.1.2 English group

Within the English group, there were only minimal to no differences from pretest to posttest of English items. A minimal increase was only observed for English cognates, and comparable performance characterized non-cognates. The mean of performance on Spanish measures for cognates and non-cognates was higher for pretest than posttest. On expressive performance, there were only very minimal changes observed from pretest to posttest in terms of English measures. There was not a considerable difference between cognates and non-cognates. For expressive Spanish measures, there was only a slight decline of performance affecting cognates observed during posttest. Change was absent for non- cognates. Evidence from this data suggests no influence of cognates facilitating word recognition and/or naming.

Table 3*English Group Receptive and Expressive Means*

	PRE		POST	
	C	NC	C	NC
Receptive				
English	3.33 (.577)	4.33 (2.082)	4 (1)	4.33 (2.082)
Spanish	4 (1)	5 (1)	3 (3)	3 (1.732)
Expressive				
English	.00 (.000)	.00 (.000)	.33 (.577)	.67 (1.1555)
Spanish	1.33 (1.155)	.00 (.000)	1.00 (.000)	.00 (.000)

Note. Standard deviations are found in the parenthesis. PRE = Pretest; Post = Posttest; C= Cognates; NC = Non-cognates.

3.1.3 Spanish group

Within the Spanish group, there were only slight increases from pretest to posttest in English. Changes did not exceed more than 2 points. There were also no considerable differences affecting recognition of cognate and non-cognate words. With regards to receptive Spanish measures, minimal change was noted for cognates, less than a 2 point difference. Non-cognates, however, demonstrated change by more than 3 points, revealed by the group's average performance from pretest to posttest. In spite of gains noted for Spanish non-cognates, standard deviations for pretest and posttest indicate some extent of variability, possibly suggesting that not all participants might have been equally affected by this study's intervention. With regards to measures facilitating analysis of expressive tasks, only minimal or no changes were noted, affecting performance in either English or Spanish. Though still minimal, the greatest mean difference in performance was noted on Spanish non-cognates. Certain variability of performance appeared to be present, possibly suggesting that not all individuals in this group might have exhibited sensitivity to manipulation of this intervention.

Table 4*Spanish Group Receptive and Expressive Means*

	PRE		POST	
	C	NC	C	NC
Receptive				
English	3.67 (1.155)	3.33 (.577)	5 (0)	5 (1.732)
Spanish	3.67 (.577)	1.33 (1.528)	4.33 (1.528)	4.67 (1.528)
Expressive				
English	.33 (.577)	.00 (.000)	.33 (.577)	.67 (1.1555)
Spanish	1.00 (1.00)	.00 (.000)	1.00 (1.000)	1.33 (1.528)

Note. Standard deviations are found in the parenthesis. PRE = Pretest; Post = Posttest; C= Cognates; NC = Non-cognates. Bolding is used to indicate gains from pretest to posttest of more than 3 points in average.

3.1.4 Control participant

The control participant demonstrated similar performance characterizing English cognate recognition from pretest to posttest. Performance on non-cognates was characterized by a slight decrease. Recognition of Spanish items exhibited some gains, affecting cognates and non-cognates. Recognition of non-cognate items demonstrated greater change, with more than a 3 point difference observed across mean performance. With regards to expressive performance, changes were only noted across English measures. Nonetheless, these were also minimal, less than a 2 point difference. There were no positive changes affecting performance on Spanish expressive measures.

Table 5*Control Participant Receptive and Expressive Means*

	PRE		POST	
	C	NC	C	NC
Receptive				
English	3	6	3	5
Spanish	3	4	5	7
Expressive				
English	2	1	4	2
Spanish	.00	.00	.00	.00

Note. Standard deviations are found in the parenthesis. PRE = Pretest; Post = Posttest; C= Cognates; NC = Non-cognates.

Chapter 4: Discussion

This exploratory study considered the effects of cognates as potential facilitators of lexical growth, while targeting a group of typically developing, preschool bilinguals. Cognate effects were measured across language of intervention, seeking to assess any likelihood of generalization. Changes on receptive and expressive use of vocabulary, related to manipulation of cognates in this intervention, represented the main focus of the current investigation. The study included participation of nine preschool, English-Spanish speakers. Participants were randomly assigned to one of three experimental groups (an English only group, a Spanish only group, and a bilingual group) and to a control condition. Children in the experimental groups were introduced to a vocabulary intervention that incorporated cognates and non-cognates. The control condition received instruction on mathematical concepts related to numbers and shapes. A comparison of pretest and posttest measures, utilizing an analysis of descriptive statistics, served to evaluate the effectiveness of this intervention.

4.1 Group Comparisons

As portrayed by the results, only minimal differences may be drawn, characterizing recognition accuracy or usage of English cognate and non-cognate items or Spanish cognate and non-cognate words. Overall, most gains were acquired in terms of non-cognate words, with gains for cognates only observed within the bilingual group, specifically noted for Spanish, expressive lexical measures. The bilingual group demonstrated the greatest gains, with differences between pretest and posttest of at least 3 points characterizing receptive English and Spanish non-cognate measures, and Spanish expressive non-cognate and cognate words. No gains of 3 points were found in the English group for either expressive or receptive measures.

The Spanish group and control participant only saw gains (a minimal of 3 points) for non-cognate, receptive items in Spanish.

4.2 Pre and Posttest Differences within Groups

With regards to receptive measures, the bilingual group demonstrated slightly better performance on non-cognate words, when comparing Spanish non-cognate to cognate items. This same group showed also only minimal increases on cognate items in English, with better performance for non-cognate words. The English group, meanwhile, exhibited only minimal improvement from pretest to posttest on English cognates. Furthermore, comparable to participants from the bilingual group, average performance for children in the Spanish group demonstrated only slightly better performance for Spanish non-cognate than cognate words. Data analysis for the Spanish group also revealed only minimal increases from pretest to posttest on English measures. Finally, the participant serving as a control displayed similar or negative performance on English measures, with better performance on Spanish non-cognates, and only slight increases on cognate words.

In terms of expressive vocabulary, within the bilingual group, expressive measures for Spanish exhibited slight gains, denoting similar performance between cognate and non-cognate words. Within the English group, performance was either comparable or exhibited only minimal differences. There was also a minimal decline characterizing performance of cognate measures for Spanish. For the Spanish group, performance only exhibited marginal gains or was similar to that of pretest. This was observed across both, English and Spanish measures. Finally, the control participant only exhibited minimal gains affecting English expressive measures. Performance was comparable across Spanish cognate and non-cognate items.

4.3 Clinical Implications

A cognate advantage supporting lexical acquisition did not appear to be available to the participants in this study, which contradicts previous work suggesting a likely sensitivity to cognates among young, emerging bilinguals (Brenders, Van Hell, & Dijkstra, 2011; Perez, Peña, & Bedore, 2010). Cross-language generalizations, as a result of this study's intervention, are also not well supported by concluding findings of the present investigation. Still, in spite of the absence of evidence pointing to a facilitating effect from cognates for this particular group of children, findings from this project align well with conclusions from previous research. There are studies, for instance, that suggest limitations to cognate effects, believed to be moderated by a series of factors: the L2 learner's age, current academic skills (development of phonological awareness as well as literacy skills), and present levels of cognition (Cunningham & Graham, 2000; Kelley & Kohnert, 2012; Proctor & Mo, 2009). Other research further implies that cognate effects may be dependent on other critical aspects, with additional consideration given to the cognate status of words (Lubliner & Hiebert, 2011). Hall (2002) also states that maturational, affective, environmental, and motivational factors may be intricately connected to language learning, while automatic cognitive processes denote important considerations of relevance to language development.

Another aspect believed to modulate the effects of cognates regards that of increasing language exposure. Cunningham and Graham (2000) mention the role of developing metalinguistic skills, while Hall (2002) addresses the importance of evolving cognitive resources. There is also literature which highlights the importance of direct and explicit instruction, necessary in helping young children to effectively identify cognates. As conferred

by some of this research, children who may not yet be literate appear to benefit from instruction that emphasizes overlaps in phonology, while simultaneously acknowledging inherent shifts that may otherwise distinguish cognates (Lubliner & Hiebert, 2011; Manyak & Bouchereau Bauer, 2009; Sunderman & Schwartz, 2008).

4.4 Limitations

One of the limitations of this study regarded its small sample size, which restricted statistical analysis. Most of the children in this investigation were also significantly young as well as emerging bilinguals. This research, moreover, did not particularly regard an approach entailing comparisons with a focus on phonological similarities shared by cognate words. Therefore, it is likely that the effects of this intervention could possibly have been curtailed by all of the above: this study's small sample size, the young age of our participants, and selected methods of instruction. As stated, the mean age of children participating in this study ranged about 3.4 years, so that most of them were probably still very early in their development of cognitive and linguistic skills (phonological awareness, metalinguistic, and literacy skills), considered critical to attain the full benefits from implicit exposure to cognate words.

Furthermore, as it regards this approach to vocabulary instruction, this intervention did not place an emphasis on phonological similarities shared by cognate words. Instead, new lexical labels were introduced by helping children associate concepts or definitions to words in this study. As stated, the current investigation manipulated four different conditions, where with the exception of the bilingual group, language of instruction was strictly specified. The experimental set-up, confounding use of any phonological comparisons between word labels, considered the likelihood of cross-language generalizations, which might have emerged without

necessary and explicit exposure to cognate items across both, English and Spanish. Thus, while considering the available literature, along with means of instruction for the current investigation (Lubliner, & Hiebert, 2011), it might have been possible that an intervention incorporating not only a semantically based approach (considering this intervention introduced new lexical labels through associations to concepts or definitions), but also instruction on phonological considerations may have indeed yielded a different outcome.

Another issue of consideration regards the status of cognate words utilized in this investigation. De Groot and Keijzer (2000) make reference to the cognate status of words, indicating that this particular factor may very likely influence the ease with which these words are incorporated into permanent memory. Not all the words in our study shared similar degrees of cognateness. Thus, controlling stimulus items, so that most of these words represented the greatest degree of transparency possible, could have possibly altered outcomes of this investigation. As stated, because of their very young age, participants in this study are likely still undergoing development of their metalinguistic awareness; and dependent mostly on phonological comparisons, may benefit more by exposure to words with clear and explicit phonological similarities (Proctor & Mo, 2009; Cunnig & Graham, 2000). Still, this study sought to explore the sensitivity of young, bilingual children to the full spectrum of cognates, with consideration given to any potential factors that may either contribute to or hinder such sensitivity. The benefits of using L1, in order to promote growth of L2, are well-supported across the bilingual literature (Comesaña, Soares, Sánchez-Casas, & Lima, 2012; Costa, Santesteban, & Caño, 2005; De Groot & Keijzer, 2000; Li, Bedore, Peña, & Fiestas, 2013). Meanwhile, exploring the suitability of methods currently employed with the use of L1, most

certainly merits evaluation, especially as this field of research is still largely scarce as well as diverging.

4.5 Future Directions

As mentioned, a review of the literature identifies the presence of a cognate advantage facilitating language processing among bilingual adults (Costa, Caramazza, & Sebastián-Gallés, 2000; Costa, Santesteban, & Caño, 2005; Dijkstra, Miwa, Brummelhuis, Sappelli, and Baayen, 2010; Hoshino & Kroll, 2008; Roberts & Deslauriers, 1999; Van Assche, Duyck, Hartsuiker, & Diependaele, 2009). Yet, the presence of this same advantage, favoring young emerging bilinguals, is still questionable after this exploratory study. Identifying a more specific time-frame, where the benefits of cognates facilitating language processing may be more readily available to young L2 learners, should help researchers identify those elements that more effectively support the language growth of young, bilingual speakers. Determining a more precise role regarding metacognitive and metalinguistic processes, since these represent key aspects moderating the facilitative effects of cognates, is also indispensable, if we are to establish the extent at which conscientious and mindful effort is necessary in the translanguage recognition of cognates (Kelley & Kohnert, 2012; Cunningham & Graham, 2000).

Unfortunately, the role of cognates among young bilingual learners still remains largely unexplored, with need for additional research evaluating potential benefits, as well as effects on the language growth among young, emerging L2 bilinguals. The number of L2 students filling our classrooms has continuously been on the rising. These students bring with them unique needs, while they also pose distinctive strengths and advantages. The development of language is essential to any child's current cognitive and academic growth, with lexical development taking a central role. Strategies that incorporate L1 in supporting growth and development of L2

are well accepted in our field. Cognates, with their similitude of features shared across languages, already facilitate language processing among adult, second language users. The available evidence addressing a cognate advantage among young and developing language users is rather limited as well as somewhat diverging. There is great need for research expanding our knowledge in this particular area, with studies including appropriate size samples, permitting researchers to abstract more stable findings as well as more generalizable and applicable conclusions. Future directions for this area research may subsequently consider sampling a larger population, manipulating cognates in terms of transparency of their phonological features, with use of treatment approaches that may explicitly instruct on phonological similarities, facilitating recognition and usage of cognates whenever available to young, emerging bilinguals.

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Appendix A - Cognate and Non-cognate Status of Stimulus Items

Stimulus item	Initial sound (0-3 points)	Syllables (0-2 points)	Consonants (0-3 points)	Vowels (0- 2points)	Total Score
nectar – nectar	3	2	3	1	9
capture – capturar	3	1	3	1	8
grain – grano	3	1	3	1	8
garden – jardín	0	2	3	2	7
insects – insectos	2	1	3	1	7
jungle – jungla	0	2	3	1	6
roar – rugir	3	1	2	0	6
cut – cortar	3	1	1	0	5
mane – melena	3	0	1	1	5
nest – nido	3	1	1	0	5
branch – rama	0	1	1	1	3
forest – bosque	0	2	0	1	3
snacks – bocado	0	0	1	1	2
claws – garras	1	1	0	0	2
bushes -- arbustos	0	1	0	0	1
dragonfly – libélulas	0	1	0	0	1
grasshopper – saltamontes	0	1	0	0	1
hunter – cazador	0	1	0	0	1
seasons – estaciones	0	0	1	0	1
yawn – bostezar	0	0	0	0	0

Note. Cognate status of stimulus items. Scoring guidelines derived from Kelley & Kohnert, 2012. Row values from 0-4 indicate non-cognate status. Row values from 5-10 assigned to cognates. Stimulus items were chosen from the Scholastic books *The Lion and the Mouse/El león y el ratón* and *The Grasshopper and the Ants/El saltamontes y las hormigas*.

Appendix B - Crosslinguistic Overlap Scale for Phonology

Feature Overlap	Scoring	Example
Initial sound (0-3 sounds)	3 = Equal consonant 2 = Equal vowel 1 = similar sound (e.g., sharing same sound class or one the elements of a consonant cluster)	melena – mane anécdota – anecdote capturar – capture
Number of syllables (0-2 points)	0 = Total mismatch between initial sounds 2 = Equivalent number of syllables	escala - escale jungla – jungle insectos – insects brazalete – bracelet
Consonants (0-3 points)	1 = Differ by only one syllable 0 = Differ by more than one syllable	eléctrico – electric cortar – cut caña – cane gema/hema – gem
Vowels (0-2 points)	3 = >70% overlap of consonants 2 = 50% - 70% overlap of consonants 1 = < 50% overlap of consonants 0 = No overlap of consonants 2 = >80% of overlap of vowels 1 = 50% - 80% overlap of vowel 0 = No overlap of vowel	nectar – nectar móvil – mobile fuerza – force

Note. This scale was adapted from Kelley & Kohnert (2012). Based on this scale, each Spanish-English word pair was assigned a specific value ranking from 0-10, with 0 indicating an absence of phonological similarity, and 10 denoting a pair with nearly identical phonological overlap. Numbers ranging from 0-4 identified words with a non- cognate ranking. Numerical values ranging from 5-10 were used to denote all cognate words. Words selected varied in terms of their cognate status. Higher ranking observed with greater the transparency of cognate items. The COSP ranking of stimulus items accounted for each of the features defined on this scale.

Appendix C - Fidelity Checklist

Group: _____ Book: _____ Session #: _____ Score: (1/0)

1. Introduction and general rules provided a pre-story presentation for days 1 and 2 of the intervention (Read the title of the story and showed the cover page. Asked the children what they thought the book was about).
 2. Read the entire story following the book in the designated language assignment. Read and showed each page to the children.
 3. Book discussion. Discussed the stories setting, characters, the problem, and the solution.
 4. Conducted a picture walk or had a vocabulary review with each item presented three or more times.
 5. Expansion activity (i.e. the children created picture books using vocabulary items introduced during the session).
 6. Behavior management was utilized.
 7. The time was within the specified time limits (50 minutes per session).
 8. All of the children were included in the intervention.
 9. Appropriate feedback was given.
 10. Maintained the topic throughout the intervention.
-

Note. This checklist was used to establish treatment fidelity. Scripts were employed during each of the sessions of this intervention, and the fidelity sheets were used to assess treatment alignment according to specifications. Based on treatment adherence, a maximum value of ten points was attainable upon meeting all intervention requirements.

Appendix D – Sample of Intervention Scripts

Book 1 - Script 1

Day 1

Read Aloud Script and Vocabulary Expansion Activity

El león y el ratón // The Lion and the Mouse

Introduction and general rules provided (2 minutes) example:

- Good morning kids! So I am going to ask you to follow some rules. Sit very quietly during the story. Look at the pictures. Listen very carefully. Finally, if you have any questions, raise your hand. We will answer questions after we finish reading the story. Does everyone understand?
- *Buenos días niños! Hay que seguir algunas reglas. Se quedan sentaditos sin hacer ruido. Pongan atención a las fotos. Escuchen la historia muy bien. Finalmente, si tienen preguntas, levanten la mano al terminar la historia. ¿Todos entienden?*

- 1. *Pre-story presentation – Discuss that the story is about a lion and a mouse. Read the title of the story and show the cover page. Ask children what they think the book is about (2 minute) English/Spanish***

Example:

- Today, we will be reading a very interesting story about a lion and a mouse. We will also be learning some new words! Today will be reading the lion and the mouse (shows cover page to everyone). What do you think the story will be about?
- *Hoy vamos a leer una historia muy interesante de un león y un ratón. Ustedes van a aprender algunas palabras nuevas. Vamos a leer el libro el león y el ratón (shows cover page to everyone). ¿De qué piensan que se va tratar la historia?*

- 2. *Read the entire story following the book in the designated language assignment. As you read the book, show the pages. Read each page. Show each page to the children. Do not expand on each page for this session (7-10 minutes).***

- 3. *Book discussion. Discuss the stories setting, characters, the problem, and the solution. Ask the children for their opinion of the story (5 minutes).***

Example: So what did you think about the story? Where did the story take place? The story took place in the jungle. Who was in the story? The lion and the mouse were the

characters in the story. What happened in the story? First the lion was trapped, but the mouse released him. Later, the lion was trapped and the mouse saved him. Did you like the ending?

*¿Cómo les pareció el cuento? ¿Dónde ocurrió la historia? En la jungla, verdad.
¿Cuáles eran los personajes de la historia? El león y el ratón. ¿Y cuál fue el problema?
El ratón fue atrapado por el león pero lo dejó ir, y luego el león fue atrapado y el ratón lo rescató. ¿Y tuvieron un final feliz?*

4. **Conduct a picture walk. Have children talk about what they see on every page as you provide lexical terms in context (sentence). Ask for words definitions. Have children recite terms. Expand on concepts and semantic knowledge. Provide expansion questions for all ten terms. Terms must be presented audibly a minimum of THREE times during the session. Examples:**

➤ So now that we read the book, let's review some of the new words that we have learned.

Ahora que hemos terminado el libro, vamos a repasar las palabras que aprendimos.

- The animals lived in a **jungle**. Do you know what a **jungle** is? Say **jungle** (have them repeat the word). A **jungle** is a place that is very green. There are plants, bushes, trees, in the jungle. There are also rivers and lakes, and it rains almost daily. In the jungle there are also a lot of exotic animals – monkeys, parrots, snakes, lions and pumas.
Expansion: Do you know anyone who would live in the jungle? Do you like trees? What kind of animals are in the jungle?

*Los animales de nuestra historia vivían en una **jungla**. ¿Saben que es una **jungla**?
Digan **jungla** (have them repeat target word). Una **jungla** es un lugar donde hay muchos árboles, ríos, lagos, es verde, y llueve diariamente. Ahí viven animales como changos, pericos, víboras, leones y pumas. **Expansion:** ¿Conocen a alguien que viva en la selva?
¿Les gustan los arboles? ¿Qué clase de animales hay en la selva?*

What is a **mane**? Say mane (choral repeat). The lion's **mane** is found around his head (point to where mane of lion). Horses and zebras also have a mane! **Expansion:** Can you think of anything else that has a mane? Do you like manes? What do you like about manes?

*¿Cuál era la melena del león? Digan **melena** (choral repeat). La **melena** es el cabello que el león tiene alrededor de su cabeza (point to lion's mane). La zebra, y caballos también tienen melenas. **Expansion:** ¿Quiénes tienen melena? ¿Les gustan las melenas? ¿Por qué si/no?*

What is a **branch**? Say **branch** (choral repeat). A **branch** is a wooden stem growing out of the trunk of a tree. Leaves grow on branches. There are many branches in a tree and they can be thin or thick. **Expansion:** Has anyone seen a branch? What do they look like? Are they big, small, or thin?

¿Qué es una rama? Digan rama. Una rama es un brazo de tronco que sale de un árbol. Hay muchas ramas en un árbol. Las hojas del árbol crecen en las ramas. Las ramas pueden ser gruesas o delgadas. Expansion: ¿Han visto una rama? ¿Cómo se ven? ¿Son grandes, chiquititos, gruesas, o delgados?

What is a **bush**? Say **bush** (choral repeat). A **bush** is a low or short thick plant. A bush is covered with many branches, green leaves, and sometimes flowers. We can see bushes growing in front of houses. They are also found in the desert. **Expansion:** Can anyone tell me if they have seen any bushes? What kind of bushes? Where have you seen them?

¿Qué es un arbusto? Digan arbusto. Un arbusto es una planta baja con muchas ramas y hojas. Los arbustos a veces también tienen flores. Los arbustos se ven en frente de las casas y desiertos. Expansion: ¿Alguien me puede decir si ha visto algún arbusto? ¿De qué tipo? ¿Dónde?

What is a **hunter**? Say **hunter** (choral repeat). A **hunter** is a person that searches for something to catch – like a bear, a deer, lion, or even birds. Hunters use nets to catch animals. They may also use guns. **Expansion:** Has anyone ever met a hunter? What would you do if you went hunting?

¿Qué es un cazador? Digan cazador. Un cazador es una persona que busca animales para atraparlos. Un cazador caza venados, leones, osos o pájaros. Los cazadores usan redes o pistolas para atrapar su caza. Expansion: ¿Han visto alguna vez a un cazador? ¿Qué harían si fuesen de caza?

What is **capture**? Say **capture** (choral repeat). **Capture** means to catch something. You can capture an animal in a net. Nets can also be used to capture butterflies. Hunters capture animals for the zoos. Sometimes, they also capture them for food. **Expansion:** Have you ever gone catching butterflies?

¿Qué es capturar? Digan capturar. Capturar es atrapar algo. Las personas capturan animales como leones o mariposas. Los cazadores capturan animales para el zoológico o para comérselos. Expansion: ¿Les gustaría atrapar mariposas?

What do we mean by **cut**? Say **cut** (choral repeat). To **cut** means to tear something apart, like a paper or a rope. The lion escaped from the net because the mouse cut the

rope. You can also cut trees, paper, and even your hair. **Expansion:** Have they ever cut your hair?

¿Qué es cortar? Digan cortar. Cortar significa cuando algo se rompe. El león se escapó de la red porque el ratón cortó la soga. Podemos cortar árboles, papel, o el cabello.

Expansion: *¿Te han cortado el cabello?*

What is **roar**? Say **roar** (choral repeat). A roar is a loud deep cry. A roar can be made by a large wild animal, like a lion or a bear. Sometimes kids roar when they are trying to scare someone else. **Expansion:** Have you ever heard the lions roar at the zoo? Do you want to roar?

¿Qué es un rugido? Digan rugido. Un rugido es un llorido fuerte y agudo. Los animales salvajes como los osos o leones rugen. Algunos niños también rugen cuando quieren asustar a sus amigos. Expansion: ¿Han escuchado a un león rugir? ¿Quieren rugir?

What are **claws**? Say **claws** (choral repeat). Claws are long pointy nails. Animals like lions, birds, and lizards have claws. Animals use claws to hunt or capture other animals. Animals can also use their claws when they are trying to defend themselves. **Expansion:** Do you have long nails that look like claws? The claws on a bear are very long. Have you ever seen them?

¿Qué son garras? Digan garras. Las garras son uñas largas puntiagudas. Algunos animales tienen garras – los leones, pájaros y lagartijas son solo algunos. Los animales usan sus garras para capturar a otros animales o defenderse de otros animales que los atacan. Expansion: ¿Ustedes tienen uñas largas como las garras de un oso? ¿Han visto las garras del oso en el zoológico?

What is a **snack**? Say **snack** (choral repeat). A snack is a small amount of food that you eat to calm your hunger before you eat a large meal – like a piece of fruit, potato chips, carrots, or a rice crispy treat. **Expansion:** What kind of snacks do you like? Give me some examples.

¿Qué es un bocado? Digan bocado (choral repeat). Los bocados son pedacitos de comida que calman el hambre antes de tener una buena y grande comida. Las frutas picadas, las papitas, o las galletas son algunos bocados. Expansión: ¿Qué bocados les gusta comer? Demen algunos ejemplos.

5. Vocabulary exercise: (15 minutes) Have children look for similar items matching the target vocabulary words to pictures provided in booklets. Have children match pictures to their respective pages. Example:

Good job boys and girls. Now I want you to pay close attention for instructions. We are going to go back to our tables. There you are going to find some books. Inside of those books, you will see pictures of the words we just learned. We are going to find pictures that match the ones in our books. For example: This page has a snack on the side. So, we are going to look in the magazines and look for all of the snacks that we can find. We will cut them out and paste them on the page. If you cannot find a picture that matches the one that you need, you can draw and color one of your own. Everybody ready! Let's go back to our chairs to begin our projects.

Bien hecho niños. Ahora quiero que pongan atención. Vamos a regresar a nuestras mesas. Ahí van a encontrar un libro con fotos de las palabras que acabamos de aprender. Vamos a pegar y colorear las fotos que se parezcan a las que se encuentre en nuestro libro. Ahora vamos todos a regresar a las mesas y comenzar nuestro trabajo.

1. Students will decorate the front of their books (name, stickers, drawings)
2. Students will color the pre-drawn black/white representations of the selected vocabulary terms.
3. Students will identify, sort, and paste pictures representative of the selected vocabulary.
4. Students will complete their respective books.
5. Students will verbally present their books to a peer.
6. Student will present their books to the whole class.

Materials:

Construction paper booklets

- Ziploc bags
- Glue sticks
- Crayons
- Magazine clippings
- Magazines
- Black and white clippings
- Stickers

Curriculum Vita

Jesica Guerrero was born in the city of Saltillo, Coahuila, Mexico. She grew up in Mexico, but completed her high school and upper level education in the United States. She received her Bachelor's in Education from SulRoss State University in 2001. She served for several years as an educator, and interested in issues regarding bilingualism and special education, decided to further pursue her career within the area of Speech and Language Pathology. In the Fall of 2012, she entered the Graduate School of the University of Texas at El Paso, seeking to attain the knowledge and skills necessary to work in this the field.

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