Cognate recognition

by

Silvia Aguinaga Echeverría

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Approved by

Gilda Socarrás, Chair, Associate Professor of Spanish Linguistics
Almitra Medina, Assistant Professor of Spanish Linguistics
Aimee Callander, Assistant Professor of Psychology

Abstract

This study is focused on cognate recognition. First, a new classification of cognates (English/Spanish) based on orthographic, phonological and semantic similarities between words have been proposed-identical, similar, and partial cognates. Second, an experiment was carried out with second semester native English-speaking of Spanish to clarify: a) whether or not beginner level students recognize cognates in the written form by providing their English equivalents; b) whether or not degree of similarity has an effect on students recognition and processing of these vocabulary items. Results suggest that participants do not recognize cognates as easily as presumed by textbook publishers and other authors. Furthermore, results from this study show that not all cognates are recognized and processed the same. It was also indicated by the results that a phonology overlap may play a role during recognition task.

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Table of Contents

List of Abbreviations

ANOVA   Analysis of variances

BIA   Bilingual Interactive Activation

BIA+   Bilingual Interactive Activation Plus

CG   Control Group

CL   Contrastive Linguistics

ESL   English as a Second Language

FLSP   Foreign Language Spanish

G1   Group 1

G2   Group 2

G3   Group 3

L1   First Language

L2   Second Language

L3   Third Language

PGs   Pronunciation information guides

RHM   Revised Hierarchical Model

SLA   Second Language Acquisition

CHAPTER 1 COGNATE RECOGNITION

During the process of the acquisition of a second language (L2) in the classroom context, a relationship between the student's first language (L1) and the target language is assumed; this relationship has been studied since the 1950s within the Contrastive Linguistics (CL) field (see Di Pietro, 1971; Fisiak, 1980; Lado,1957). CL principles rest on a twofold axis, based on behavioral theory and structuralism. On the one hand, behavioral theory predicted that established habits of the L1 can create transference in the learning process. Transference is defined as the use of elements from another language (usually, L1) while producing L2, e.g., the transfer of grammar structures, e.g., native Spanish speakers while learning English as an L2 usually drop the subject pronoun a structured transfer from the L1. On the other hand, structuralism theory strives to compare the surface of English structures to different languages. The goal was to systematize the degrees of difference between the structure of the L1 (English in this case) and the L2. Thus, the following equation was posited: "learning difficulties = differences between languages structures" (Zanón, 2007). As a result, transfer theory and analysis of errors emerged as a new linguistic perspective. However, research does not support transfer as the main source of error production in second language acquisition (SLA). The majority of studies focused on error analysis concluded that around only 30 percent of errors can be attributed to negative interference effects (e.g., Dulay & Burt, 1973; Ellis, 1986). Nevertheless, although the popularity of CL analysis decreased, especially after generative ideas appeared (Chomsky, 1959), studies have been conducted within the phonology field addressing the difficulties usually learners have due to their native language (see González Barrera, 2010; Moreno Fernández, 2000; Serradilla Castaño, 2000; Terrel, 1989).

Vocabulary acquisition plays a central role in the acquisition of a second language, as pointed out by Gass (1990), Levenston (1979), Oxford and Scarcella (1994), Politzer (1978), among many others. In particular, vocabulary acquisition is essential not only in communication, but also in understanding the target language (e.g., Levenston, 1979; Politzer, 1978). Nonetheless, as Lado (1955) indicates, target language vocabulary is not the only element to consider:

> We simply cannot ignore the native language of the student as a factor of primary importance in vocabulary, just as we cannot ignore it in pronunciation and grammatical structure…Similarity and difference to the native language in form, meaning and distribution will result in ease or difficulty in acquiring the vocabulary of a foreign language. (p. 31-32)

The focus of the present study is on the role cognates (i.e., words with similar morphology, sounds or meanings in two languages) play in the acquisition of L2. In particular, this study addresses the recognition and processing involved when learners encounter these vocabulary items. Cognates have been identified as helpful and easy vocabulary items to learn in a second language (De Groot, Dannenburg, & Hell, 1994). However, only a few studies with novice language students have been done, with most of them assuming that beginners can recognize cognates, and as a result take advantage of the similarities between these vocabulary items in the acquisition process. Moreover, most language textbook publishing companies also assume that learners can recognize and process cognates without problems; for this reason practice activities on cognates recognition are scarce in those publications. The present research intends to address this topic, that is: What is the role of cognates in SLA? Specifically, are cognates between English/Spanish recognized and processed by Spanish L2 novice learners? If

so, are all cognates processed equally by learners or are there differences pertaining to the degree of morphological and phonetic similarities perceived by students? For example, are there processing differences between **identical** cognates such as "mural"–"*mural*", **similar cognates,** i.e., those which differ by one or two consecutive letters, such as "inherent"–"*inherente*", and **partial cognates,** those which differ by two or more letters, such as "conclude"–"*concluir*"? These cognates' characteristics will be defined later in Chapter 3.

Theoretical Foundation

Many studies have focused on how learners store and process non-native vocabulary (e.g., Chen, 1990; De Groot et al., 1994; Kroll & Cureley, 1988; Potter, So, Von Eckardt, Feldman, 1984), but in particular, three memory and processing models have been put forth in the literature to address this topic: the word-association model, the concept-association mediation model (both studied by Potter et el., 1984; Chen, 1990; De Groot et al., 1994), and the intermediate model, later called revised hierarchical model (Kroll, & Cureley, 1988; Chen & Leung, 1989; Kroll & Stewart, 1994). These three models share two major assumptions regarding vocabulary acquisition and production. First, they assume the existence of two separate and independent lexicons for each language, in this case the first language (L1) and second language (L2). Second, they support the assumption that these lexicons share a similar concept representation for each word. They disagree, however, on the proposed connection between memory stores, i.e., where the information is stored, and the manner in which new words are processed (see Appendix-B Figure1 from De Groot et. al, 1994).

The word-association model postulates direct connections between L2 and L1 lexicons and each L2 word is connected to the concept through its equivalent L1 word (see Figure 1 in Figure 1). As a result, L2 words can only access the corresponding concept indirectly via L1. In

contrast, the concept-association mediation model proposes that both languages operate independently and they both are connected to one another only through the concept (see Figure 2 in Figure 1). The third model—the intermediate model or revised hierarchical model—combines the two previous models and assumes that both type of access, via concept or via L1, occur but they depend upon the type of task or the proficiency level of the student (see Figure 3 in Figure 1).

Potter et al. (1984) compared the word-association model and the concept-association mediation model in a study in which proficient Chinese-English bilinguals and novice English-French bilinguals performed picture and word naming tasks in both directions between L1 and L2 translation. The authors also studied latency during reading aloud protocol, word-translation tasks, and picture-naming task. Latency is defined as the time that elapses between the stimulus (the target word or the picture) and the student's response. On the one hand, the researchers predicted that subjects should spend less time on the word-translation task (translating words from L1 to L2) than on the picture-naming L2 task, based on the word-association model students will have to complete more steps in the picture-naming task, i.e., participants have to activate the concept. On the other hand, Potter et al. predicted, in line with the conceptual-association mediation model equal response times for the two tasks were expected based on the assumption that pictures and words share a similar amount of time for semantic-access (see Appendix-A Table 1 from Potter et al., 1984).

The results of Potter et al. support the concept–association mediation model in that participants spent the same amount of time on both tasks, translating and picture-naming. Similarly, the authors found evidence in support of direct access between the two lexicons; they point out that "naming in a second language can be cued directly by pictures that have never

4

been associated with the L1 word. These relationships are embodied in the concept mediation model" (pg. 36).

The third model, the intermediate model or revised hierarchical model (RHM), has been proposed by researchers such as Kroll and Cureley (1988), Chen and Leung (1989), and Kroll and Stewart (1994), and RHM was presented as an alternative model of word-association and concept-association mediation models. They argue that in order to learn an L2, it is necessary to use an existing internal representation. Kroll and Stewart (1994) focused their research on asymmetries in translation performance between backward and forward translation. Their study was carried out with word lists were presented in semantically categorized (all words belonging to the same semantic category, e.g., all kitchen utilities) or in mixed lists (words selected from several semantic categories and presented in a random order). They found that the semantic contexts affected forward translation, but not backward translation. Another finding was that the translation of words in categorized lists took longer than the translation of words in mixed lists. That is, while translating from L1 to L2, translation would be semantically mediated because of the strong L1 meaning link. However, translation from L2 to L1 could be accomplished lexically, without semantic access, if the L2 word enabled lexically mediated retrieval of the translation.

Pertaining to cognates, Sunderman and Kroll (2006) compared the performance of less and more proficient L2 learners on a translation recognition task. Both groups had to decide if two words were translation equivalents of each other. The stimuli were presented so that the L2 (Spanish) word appeared first, followed by the L1 (English) word. The results showed that only learners at early stages of L2 acquisition indicated evidence for activating the L1 translation equivalent; lexical decisions were faster in cognates than in non-cognates. That is, the authors

noticed a data pattern supporting the word-association model for low-proficiency bilinguals and the concept-association mediation model for high-proficiency bilinguals. These results suggested that learners, for whom the L2 is relatively weak, will exploit the L1 translation equivalent for the purpose of accessing meaning. Researchers also pointed out that bilinguals are at an advantage in recognizing words that are cognates, whereas monolinguals show none of these effects.

Another branch of research that complements the field of L2 word recognition has been explored by Ton Dijkstra and Walter Van Heuven (1998). Those authors have worked on bilingual word recognition and developed initially the bilingual interactive activation model (BIA) and later on, the bilingual interactive activation model plus (BIA+). The BIA model is based on the interactive activation model first proposed by McClelland and Rumelhart (1981). BIA model supports the non-selective nature of lexical access across languages. The bilingual lexicon is integrated and the lexical access is non-selective; lexical candidates in both languages are active whenever the input shares features with alternatives in each of the languages. Opposite to RHM, which suggests that the manifestation of L1 activation during L2 processing consists of direct access to the L1 translated equivalent, Dijkstra and Van Heuven suggested that it is not the translated equivalent itself that is activated, but rather lexical sound relatives. The authors conducted a study with fluent bilingual Dutch-English speakers and found out that when subjects performed lexical decisions in L2, words in both languages L1 and L2 that are orthographic neighbors of L2 target word, have an influence on their performance. The model consists of a networking of nodes representing orthographic, phonological and semantic representations. In this model the main function of the language nodes is to determine which lexicon to inhibit. For

instance, upon seeing an L2 word, a native English speaker's nodes will inhibit words similar to his/her L1 (see Appendix B, Figure 2 from Dijkstra et al. 1998).

Dijkstra and Van Heuven have pointed out in several experiments that the activation of lexical form information of L1 to L2 cannot be only applied to the processing of cognates and interlingual homographs (words that share form but not meaning across languages), but also extends to any words that share orthography-forms; e.g., "fort"-"*kort*" (translates to "brief" in English). Also see Dijkstra, Van Jaarrsveld & Brinke (1998); Dijstra & Van Hueven (2002); Dijstra & Van Hueven (2002).

As proposed in the BIA model, when a proficient bilingual reads a letter string (a word), several lexical candidates—regardless the language—are activated. In addition, these effects appear to be driven in a bottom-up manner (letters activate words from both languages in an integrated lexicon) so that they are relatively uninfluenced by factors such as instruction or the language chosen for the task. Also, the language nodes exert a top-down processing (language nodes selectively inhibit effect in words of the other language).

The authors bring up a very interesting point, that is, the existence of a phonological effect during a task recognition (Dijkstra, Grainger & Van Hueven, 1999). This new point, not taken into account by the aforementioned studies, provides a very interesting and new field to research. The findings showed cross-language effects of phonological overlap between words; while orthographic and semantic overlap were shown to result in facilitatory effects relative to controls, phonological overlap induced inhibition. In sum, they pointed out that identical cognates and interlingual homographs can be identified faster because they share lexical and sublexical orthographic representation across languages. In contrast, the study showed a negative influence of cross-linguistic phonological similarities on word recognition latencies in bilinguals.

As the authors mentioned: "phonological inhibition now occurs because after a given letter string activates all compatible phonological codes independent of language, this competition results in a delayed identification of the item in the target language" (p. 512).

The phonological interference and other issues found through several experiments—such as the relationship between word identification and task demands, the representation of interlingual homographs and cognates, and representational and functional aspects with respect to the language nodes—generated a new diagram to represent the model: BIA+ (see Appendix B, Figure 3 from Dijstra & Van Heuven, 2002). The improved model rests on the following ideas: a) Bilingual word recognition is affected not only by cross-linguistic orthographic similarity effects, but also by cross-linguistic phonological and semantic overlap. b) The first stages of word recognition are carried out in the same manner as in BIA model; several lexical candidates—regardless the language—are activated depending on their similarity to the input word, and on other individual factors such as use frequency, subjective frequency, L2 proficiency, etc. c) Orthographic representation becomes activated at the same level as phonological and semantic representations. As activations depend on individual factors, this implies that the phonology and semantic L2 codes may be delayed in their activation in relation to the L1 codes; the authors relate this phenomenon to the type of task and the language level of students. d) With linguistic or non-linguistic context effects, BIA+ model predicts that the type of task will have an influence on word recognition processing. When a word recognition task is inserted into a sentence context, the process is sensitive to syntactic and semantic context information; for example, context information might inhibit or reduce the activation of lexical candidates or induce a more flexible activation of lexical candidates in the two languages.

Empirical Research on Cognates

The studies reviewed for the present research point to the fact that even though a precise definition of cognates is warranted in order to fine tune research objectives in this topic, no consensus is found in the literature pertaining to their definition, as pointed out by Friel (2001). Also as Friel (2001) notes, most researchers agree that cognates are words with similar roots, hence their similarities in sound and appearance. Hall (2002) defines them as "words in two or more languages which share phonological and/or orthographic forms, and normally -but not necessarily- are also related semantically" (p. 69). Holmes and Guerra (1993) defined them as items of vocabulary in two languages that have the same roots and can be recognized as such. It has been observed that even though researchers agree on three fundamental properties of cognates, namely their phonetic, orthographic, or morphological and semantic similarities in the languages compared, they do not clarify the meaning of similarity.

Lobo (1966) created a cognate corpus of 10,000 words shared between Spanish and English. Lobo categorized cognates as follows:

1) A cognate is considered to be an item with a shared orthography, meaning, or etymology, or a combination of these overlapping in two languages.

2) Three classes of English-Spanish cognates were distinguished:

   a) Those which are **similar** in orthography, meaning, and etymology, called true cognates. (For example: "tomato" – *"tomate"*)

   b) Those which are **similar** in meaning and orthography but not in etymology are called accidental cognates. ("Shock" – *"chocar"*)

   c) Those which are **similar** in orthography and etymology, but not in meaning are false cognates. ("Bigot" – *"bigote"*)

9

In addition to Lobo's categorization, other researchers have proposed different methods to identify cognates and create different cognate corpora. Friel and Kenninson (2001) researched two techniques to identify cognates and as a result were able to create a list of English-German cognates. They worked with 250 undergraduate students, native speakers of American English with no previous learning experience with German. They used two techniques to identify cognates: Technique 1 included the similarity-rating procedure of De Groot and Nas (1991). During this task participants were asked to rate the similarity of translation pairs on a seven-point scale (1 = "Low similarity" e.g., "*sarg*"- "coffin" and 7 = "High similarity" e.g., "*kanal*"- "canal"). Technique 2 included the modified translation–elicitation task of Kroll and Stewart (1994), which required students to translate a series of German nouns, as "*kompromiß*"- "comprimise". With both techniques, half of participants were instructed to base their rating on the overlap in sound and appearance between translation pairs where they could hear the pronunciation of the word. Conversely, the other half rated the pairs and performed the translation task based only on appearance. As a result, they obtained a list with 112 German-English cognates and 94 false cognates. A correlational analysis between Technique 1 and 2 indicates that both were significantly positively correlated. Therefore, they obtained the same cognate translation and rating results with both methods.

Furthermore, four hypotheses were tested during their experiment. Hypothesis 1 assumed that participants would translate nouns with umlauted vowels and/or *asszets* (special German characters) less accurately than other nouns because the orthographic differences would interfere with word recognition. The results showed that the orthographic differences had a significant effect on both tasks with considerably lower results for those pairs in which the German word contained a German-specific character. However, this conclusion has to be examined more

carefully because there were more words with specific German characters than words without these characters, as pointed out by the researchers. Also, they do not mention if they kept the number of the specific characters as a constant in each word, nor they specify how many characters were in each word. This could be an intervening variable.

Hypotheses 2 and 3 postulated that participants who received pronunciation information guides (PGs) would produce higher similarity ratings during Technique 1 because the sound would help students recognize similarities between languages. In the same manner, participants would rate German-English translation pairs as more similar than those who did not receive PGs. As a result, these researchers showed that performance in the similarity-task and translation-task was influenced by the PGs, such that they (the PGs) had a positive influence on students' ability to recognize cognates. The differences between the +PGs and –PGs groups, however, were not significant.

Hypothesis 4 predicted an interaction between the two factors (PGs and orthographic differences) in both techniques; that is, the researchers expected the participants who received the PGs to perform better at identifying similar word pairs than other participants when encountering German words with no English characters. However, the influence of the PGs was different between both techniques pertaining to those words that contained German characters. Specifically, they saw that for those words that did not contain German characters, the PGs had more influence in the similarity-rating task than in the translation-elicitation task.

It is important to point out that the similarity-rating method seems very ambiguous. To scale 563 words with a rating from 1 to 7 can prove to be a difficult, tediousness and confusing task. Furthermore, the translation-task might have proven more difficult because the cognitive

demands look to be extensive (asking participants to translate a word that he/she has never encountered) even with the help of the PGs.

The studies included in this literature review do not share similar results. Moreover, they can be characterized as lacking well-defined conclusions and often presenting conflicting results. As well, even though most of the studies work with bilinguals subjects, there is no clear definition of what bilingual means. This fact makes their findings more difficult to understand.

Holmes and Guerra (1993), Tonzar, Lotto and Job (2009), Hall (2002, 2009), Tercedor (2010), Hoshino and Kroll (2008), Costa, Caramazza and Sebastian-Galles (2000), and Sherkina-Lieber (2004) show that students can recognize cognates, and due to this fact they can easily process these words. On the other hand, Lightbown and Libben (1984), Tréville (1996), and Harley, Hart and Lapkin (1986) conclude that students do not recognize cognates and due to this fact, instructors should teach students how to recognize and work with cognates., The studies discussed point to need for further clarification of the role that cognates play in SLA, one of the focuses of the present research.

An initial description of several studies that suggest that students do recognize cognates will be presented. Additional studies will later be described which found different results showing that students do not recognize cognates.

Holmes and Guerra (1993) proposed a method to recognize cognates in reading comprehension tasks. The researchers hypothesized that students can recognize cognates easily because of the word similarities. The authors worked with undergraduate Brazilian students of Portuguese Philology and graduate Brazilian students of Cognitive Psychology. Most of these students were almost complete beginners in learning English with only a vague knowledge of a few words from previous school experience. Data was gathered through Think-aloud protocols

(TA): students read silently through an English text and orally summarized their understanding in Portuguese. At the same time, they spontaneously commented on the task. The analysis was done by matching the wording of the subjects' summaries with the original text to identify cognates and other vocabulary items which were recognized or misrecognized in the original text and were transferred directly to the summary. In conclusion, they considered cognate recognition as a "natural" strategy; however, there was a variation of recognition from one student to another. To explain these variations, the authors stated that "cognate identification seemed to be personal, with some subjects inclined to be more liberal than others admitting a word cognate" (p. 89). Holmes and Guerra also pointed to the idea that previous knowledge was important. Students demonstrated that they were very dependent on their previous knowledge of the topic to predict the text's content and the author's purpose. Students also used their previous knowledge to interpret cognates.

Another technique that was used by the authors is cognate recognition in group summary preparation, which focuses on false cognates. The chosen task was to write in groups a summary in Portuguese (the students' L1) of a given English text using "directed summary" (p. 94). Authors decided to carry out the activity in groups because it was an activity that students usually do in a classroom environment. As a result, they discovered that almost all cognates were recognized.

Based on these results and on the demonstrated importance of previous knowledge, it can be noticed that students of Portuguese have knowledge of word forming. Due to this, these results could also indicate that for these students it was easier to recognize cognates because of their linguistic knowledge. Also, a limitation in the group work should be considered: Were cognates universally recognized or just by the best students in each group? However, the authors

do not mention it. In addition, another interpretation to be considered from reading this article is that students are not always "liberal" in recognizing cognates because, perhaps, they do not recognize them.

An additional study within a classroom environment was done by Tonzar et al. (2009), who worked with Italian native speakers. The authors compared two teaching/learning methods (word–word, picture–word) and evaluated vocabulary acquisition with different age groups. In addition, Tonzar et al. tried to assess the role of cognates' status in the learning process.

In this study, participants were Italians in Grades 4 and 8 studying English and German as their L2. Fourth grade students did not have previous L2 language knowledge; eighth grade students had four years working with an L2 in school. The division of the groups was decided by their age: Group 1 was formed by 123 fourth graders, approximately 9 years old, and Group 2 was formed by 106 eighth graders, approximately 13 years old. Students were evaluated using a test, which will be explained later, administered in four different sessions. They compared a verbal method (L2 word + word in the native language) and a picture-based method (L2 word + picture). As their materials, the authors used 40 cognates within their pictures list.

In Phase 1 students did two pretests; the first test was a picture-naming test in their L1, and the second test was a cognate rating-task to assess the cognates' relationship between Italian words and their translation in English and German. This rating-task was like Friel and Kenninson's (2001), whereby students evaluated the cognates using a 7-point scale of orthographic similarity. As a result of the pretests, authors obtained a cognate list for the actual experiment—a list of 40 pictures with the corresponding names in Italian, English, and German.

In phase 2, Tonzar et al. tried to single out the effect of the learning method in relation to the linguistic distinction between cognates and non-cognates. They showed each item from the

14

list of words for each of the two different methods (verbal method vs. picture-based method).

Finally, students took four exams: the first one was after the first session; the second one was after the second session; the third exam was one week later; the fourth exam was one month later. The third and the fourth exams were unannounced.

The results were the same in both grades: participants performed better with the picture-naming method than with the word-word method. Also, they were better able to remember cognates than non-cognate words after several weeks, showing that cognates are easier to learn than non-cognates.

After reading the article, it should be noted that cognates help in the learning process even at the beginner level; however, do students really recognize or notice them? Can the fact that students saw the pictures in the first test and named them in their native language have an influence on the results?

Other studies on the role of cognates in learning an L2 or L3 have also been conducted by Hall (2002, 2009). Based on his parasitic model of vocabulary development, he assumed that learners automatically utilize material from L1 or L2 in order to establish an initial representation of the unknown term; this implies that learners are predisposed to produce overlap between languages. On encountering novel vocabulary items, learners initially use already existing information from the words that they know in order to confirm or create hypotheses about the meaning of these novel words. Learners, in turn, activate lexicon which are based upon the connectionist view that the mind is a vast network of simple processing units where complex mental states and behaviors are the results of different configurations of the network. Hall (2002), worked with 95 university students with an intermediate English level, and with Spanish as a native language. He used a word list of 100 items--10 real English cognates and 90 words

divided in different sets: one set of 30 English non-words was constructed; half of them looked like Spanish cognates (pseudo-cognates, such as "*campanary*"= "campanario"); the other half (another 15 words) did not look like Spanish cognates ("*pirt*"="estribo"). The remaining words (60 real English words) were composed of half cognates and half non-cognates. These 10 real English items were used as warm-up to explain the experiment process to the students.

Participants were asked to perform two tasks for each type of word they saw--pseudo-cognates (non-word cognates and non-word non cognates) and real words. First, they had to record whether or not they had seen the word before; secondly, they had to write down what they thought the Spanish word closest in meaning to the English word presented could be, even if they had to guess.

Hall based his classification of pseudo-cognates and real words on four criteria (frequency, length, morphological complexity, and cognate status--real words and non-words must share at least two-thirds of their form) designed to address five separate hypotheses. Results showed that, first, there were a high number of students that recognized familiarity with the pseudo-cognates, and less familiarity with the other two types of words: non-word non cognates and real words. Second, the number of different Spanish translations given per item was lower with the non-word cognates group within the category of pseudo-cognates. Third, the number of participants responding with the most favored translation per item was higher for pseudo-cognates. Fourth, the number of participants answering with forms that shared the initial letter in Spanish and in the pseudo-cognates were also higher. And fifth, that the number of participants responding better on forms that shared three consonants between Spanish and pseudo-cognates was higher. Hall concluded that an overlap between languages exists.

As can be noted this experiment lacks context, which has also been seen with various other experiments within this literature review where only a list of words has been given to the participants. Could students' reactions be different if cognates were framed in a particular context? Notwithstanding, the main limitation found within Hall's study has been the list of pseudo-cognates because these pairs are very similar ("*campanary*" = "campanario", "*stribe*" = "estribo"). Could students recognize words with less similarity? It is also unclear as to why Hall used the thirty real cognates in his experiment, and what the results were regarding those words in particular.

In a recent study, Tercedor (2010) worked with cognates but from a different perspective. She wanted to describe the role of cognates as lexical choices in translation, in contrast with previous pedagogical approaches that have been applied in previously discussed investigations. Within Tercedor's article, two groups are compared: 77 Spanish university students studying for a Translation and Interpretation degree at the University of Granada, and 66 volunteer students at the University of Ottawa who were considered to be advanced learners of Spanish. Both groups did a translation task that differed in format. The first group, the Spanish university students from Granada, received a diagram of an online business webpage in .html format. Participants were instructed to translate from English to Spanish using a Computer Aided Translation tool (CAT) or text editor, and they were given credit for their work. Students submitted the assignment electronically within one week. The second group, the Advanced Spanish students from Canada, viewed an onscreen presentation of authentic English sentences in context with the same vocabulary that the other group had seen. These contexts contained the same cognates as part of compound structures or phonological units in an *equibiased* mode, i.e., with two or more translation equivalents not biased in frequency.

The Spanish translation students did not use cognates or reduce their use of cognates when translating because, for them, cognates are considered to be potential translation problems. However, Advanced Spanish learners translated cognates more often.

It should be noted from this article that the Spanish university students did not use cognates because in those specific sentences the cognate translation did not match the context. As Tercedor pointed out, cognates can be a potential translation problem due to the fact that they can be inappropriate for translation purposes because not all of them match every context. Similarly to these findings on the importance of the word-context, Lightbown and Libben (1984) also concluded that not all cognates can be translated in all sentence contexts. However, Advanced Spanish learners seemed to use cognates without fear, presumably due to the fact they do not find them to be problematic in most contexts. Due to this, they used cognates inappropriately in some translations because the outcomes of the translations did not work in some contexts.

In gathering research done on cognates, very few experimental studies have been encountered within the field of applied linguistics pertaining to the recognition and the effects of cognates on vocabulary learning. Furthermore, it has become obvious that most of these research studies have been focused primarily on bilinguals. For example, Hoshino and Kroll (2008) completed a study within the field of psycholinguistics that focused more on processing vocabulary, in which they paid particular attention to the value that cognates had in studying lexical access and representation in the bilingual lexicon. Their research focused on picture-naming, and they worked with 35 Spanish-English and 20 Japanese-English bilinguals with an L1 dominant. These subjects were placed in front of a computer and asked to name the pictured objects in English (with the written lexical form being absent) as quickly and accurately as

possible. If they did not know the name, they were asked to say "no" into a microphone and their answers were recorded throughout the study. A total of 20 practice trials took place during the experiment. The results revealed that one important effect of using cognates was that the students were able to name pictures faster when the word was a cognate. Moreover, the pattern of results was similar for both groups (Spanish and Japanese), suggesting that even when a bilingual's two languages do not share script, there is cross-language activation; in this case the phonetics of the non-target language were utilized.

In another study, Costa et al. (2000) worked with Catalan–Spanish bilinguals (they reported that Catalan was their dominant language), who were asked to name two sets of pictures whose names were or were not cognates in the L2. The participants performed two tasks. In the first task participants named pictures in their dominant language (Catalan); the authors executed the same task with monolingual Spanish speakers to compare the naming latencies of both kinds of participants. Within the second task, the authors worked only with the Catalan speakers who named pictures in both languages, Catalan and Spanish.

They based their work on the cascaded activation assumption that the phonological content of the word is activated through the semantic system, and this phonological activation flows continuously from the lexical layer to the phonological layer, regardless of which one is selected. Based on this theory, the authors showed 80 pictures (40 cognates, 40 non-cognates) in a manipulated order based on the syllable length, and the frequency of the picture names. All cognates shared at least the first whole syllable, and all of them shared at least the first phoneme. Costa et al. hypothesized that if the two sets of pictures were comparable with respect to variables that affect naming latencies, Spanish monolinguals would show identical latencies for the two sets of pictures. Furthermore, if cognates affect picture-naming latencies, a difference

between the two sets of pictures would be produced by the bilinguals. The study showed that bilinguals and monolinguals produced very different patterns regarding the cognate variable. Bilinguals named the pictures whose reference was a cognate faster than pictures with non-cognates; on the other hand, monolinguals named the two sets of pictures equally quickly. A second task was carried out to investigate how cognates affect the performance of bilinguals. Within this task, half of the participants reported that Catalan was their dominant language and the other half that Spanish was their dominant language. Costa et al. showed the same 80 pictures that were shown in Experiment 1, and as a result the main effect of block repetition was significant in the naming latencies analyses. In summary, results suggest that cognates facilitate the naming performance of bilinguals.

To obtain more information about bilinguals and the hypothesis of sharing a lexical representation between both languages, Sherkina-Lieber (2004) worked with 40 Russian-English bilinguals and 20 English monolinguals. She performed a 10-point scale rating-task to evaluate the frequency of use for a set of words, 35 cognates and 55 non-cognates. Bilinguals rated the frequency of cognates significantly higher than monolinguals did. However, there were no differences for non-cognates. Due to this fact, the author concluded that cognates have an effect in frequency rating, and this cognate frequency effect can be possible if cognates share at least some part of their representation between the two lexicons.

In contrast, several studies have concluded that students do not recognize cognates, and due to this fact instructors should include more cognate recognition activities in their classes (Lightbown and Libben (1984), Tréville (1996), and Harley et al. (1986)).

Lightbown and Libben's (1984) research goal was to explore the role of transfer in the L2 lexicon, or more specifically, the use of cognates. The research done was based on comparisons

of free compositions, a cloze test (consisting of a portion of text with certain words removed, where participants were asked to replace the missing words), and a word acceptability judgment task performed by two separate groups—one consisting of native French speakers learning English as an L2 (divided into two groups) and another consisting of native English speakers.

A pre-test was administered to native French speakers to identify how much contact students had with English outside of their classes. Afterwards, the task consisted of a movie which was shown twice to each group; then students had approximately 40 minutes to write a composition based on the movie. They were instructed to write about the movie as if they were telling the story to someone who had not watched it. Four months later, a portion of these ESL students also wrote another composition about the same movie in their native language, French.

The authors considered 10 cognates as potential sources of overlapping, such as cowboy, saloon, sheriff, or guitar. Their results were inconclusive because their Francophone participants did not use the same words in the same contexts as did English native speakers. To address this issue, the researchers carried out another experiment in order to judge the appropriateness of the words, and the appropriate context with which to study the cognates that they chose as a potential source of overlap. This new experiment only differed by one step from the original one—a test with 10 concepts that was administered after watching the movie. This test tried to "force" students to rely on cognates more heavily; however, it did not succeed. The authors created a cognate classification criterion related with the context after seeing that not every student used the cognate in every context:

1. Appropriate cognate in both languages.

2. More appropriate in French

3. More appropriate in English

4. Appropriate in neither language

Also, authors mentioned that it is possible students do not trust words with similar spellings in the two languages or that students simply are unaware of the relationships between two languages. Due to this fact, students need to be taught how to recognize all the potential relationships between two languages.

Support for Lightbown and Libben's findings on the importance of training students to recognize cognates is found in Tréville's (1996) study on lexical reading and cognate recognition in French as an L2. She worked with 105 university level beginner and false beginner learners of the L2, all of whom were Anglophone. Students were registered in a course focused on French listening and reading comprehension. Pupils were divided into two groups--the experimental group participated in a modified portion of the course focused on cognates, while the control group did not receive this portion of the course. At the end of the course, all students (experimental and control group) were given a special exam, the TARC (Test of Aptitude in Recognizing Written Cognates). The exam involved s 7 scales, two of which were separated into two subdivisions. The exam in its entirety consisted of a total of 9 tasks, including:

1) The recognition of cognates and French grammatical inflections out of context.

2) The transfer and application of intertextual correspondence rules.

3) The identification of grammatical categories of English (Task 1) and French words out of context (Task 2).

4) The identification of grammatical categories of English (Task 1) and French words in context (Task 2)

5) Derivation based on French words.

6) Comprehension of a French text of 180 words, including a large number of cognates.

7) Inserting cognates in the correct form in appropriate contexts.

Tréville found that the experimental group obtained better results in recognition, application of interlexical correspondence rules, identification of grammatical categories, generalization of interlexical rules, and the selection of appropriate words in given contexts.

It should be noticed, Tréville's study points to the fact that teachers or textbook publishers should not presume that existence of cognates between languages will guarantee that L2 learners will use cognates properly.

Harley et al. (1986) presented an English-French bilingual study with Americans living in Canada, and to my knowledge there are no other studies related to this idea.

As previously mentioned, Harley et al. (1986) reached the same conclusion in their study as Tréville 91996), and Lightbown and Libben (1984): "one cannot assume that the existence of cognates between languages will ensure that L2 learners will, without instruction, use or even recognize all the potential relationships between languages" (p. 407). The study done by Harley et al. focused on bilingual children in a French L2 immersion situation. Their hypothesis proposed that early bilingual schooling would enhance their performance on various kinds of L1 tasks, and as a variable they also studied the role of cognates. They carried out a longitudinal study with participants from grades 1 to 6. To approximate the level of their L1-English, participants took the Canadian Test of Basic Skills (CTBS). The results from the vocabulary section showed that immersion students performed better than regular program students. The authors wanted to determine whether or not knowledge of cognates in French was an advantage for immersion students. That is, whether or not immersion students would perform better than

regular students overall on a test of vocabulary knowledge test and with English lexical items that were cognates in French. This hypothesis was not supported by the results of this test. In relation to these findings, the authors concluded that students do not use these relationships between languages.

As has been pointed out before, the studies covered in this literature review do not share similar results. As well, most of the articles can be described as lacking of well-defined conclusions and often presenting limitations.

CHAPTER 2 RESEARCH QUESTIONS AND HYPOTHESES

The aim of this study is to define the role cognate recognition and processing plays in the acquisition of Spanish as an L2 vocabulary. Research focus on this topic, is scarce and what has been discussed in this review represents, to my knowledge, the most relevant studies that have been done on cognate recognition, processing, and translation. Tercedor's (2010) research focused on translation, and Harley et el., (1986), Hoshino and Kroll, (2008), Costa et al., (2000), and Sherkina-Lieber, (2004) focused their studies on bilinguals, however, the definition of bilingual was not always clear. Studies conducted by Lightbown and Libben (1984), Tréville (1996), Holmes and Guerra (1993), Tonzar et al., (2009), and Hall (2002, 2009) worked with novice levels.

The present study attempts to address the following research and methodological issues. First, provide a more precise definition of what cognates are in order to study their role in SLA. Second, clarify what is meant by the similarities they share between languages (i.e., English and Spanish in this case), to address the methodological issues discussed in Chapter 1. Third, shed some light on the conflicting results available on cognate recognition. As mentioned in Chapter 1, on the one hand, studies presented by Lightbown and Libben (1984), Tréville (1996), and Harley et al., (1986) conclude that students have difficulties recognizing cognates. On the other hand, Holmes and Guerra (1993), Tonzar et al., (2009), Hall (2002, 2009), Tercedor (2010), Hoshino and Kroll (2008), Costa et al., (2000), and Sherkina-Lieber (2004) pointed out that students can indeed recognize cognates as a natural strategy for understanding language.

Given these gaps in L2 research and the impact they can have on vocabulary acquisition, examination into the following questions are both timely and critical.

Research Questions:

The following research questions will guide the present study:

1. Do second semester native English-speaking students of Spanish as an L2 recognize
    cognates in the written form as it has been assumed by beginner Spanish textbook
    publishers? And if they do, what role does the L1 play in the processing of cognates?

2.   Does cognate degree of similarity have an effect on student recognition and processing
    of these vocabulary items? That is, does a classification of cognates predict their
    performance?

3. Does the use of cognates facilitate reading comprehension?

Hypotheses

The present study addresses several hypotheses. First, in terms of cognate recognition,
whether English-speaking students of Spanish as an L2 are able to recognize all the cognates
displayed within the context of a text, as put forth in the literature in studies by Holmes and
Guerra (1993), Tonzar et al., (2009), and Hall (2002, 2009) who proposed that cognates are easy
words to process due to the similarities; or whether students are not able to recognize cognates,
as proposed by Lightbown and Libben (1984), Harley et al. (1986), and Tréville (1996). These
studies predict that second semester English-speaking students of Spanish as an L2 will not
recognize all the cognates displayed within the context unless instructors teach students how to
recognize and work with cognates. At the same time, these hypotheses are related to the effect
that cognates can have on comprehension and processing.

As proposed by several authors similarities between words can have an effect in cognate
recognition. Since one of the main goals of the present research is the definition of cognate
similarity between English and Spanish, cognates were classified into three different levels of

26

similarity: identical, similar, and partial (see Chapter 3 for details). I predict that most of the cognates that will be recognized by the participants will be identical or similar cognates because of the greater similarities between the English/Spanish forms of the words.

Several models have been proposed in the literature to account for cognate processing and production in language acquisition, e.g., the word-association model, the concept-association mediation model (both studied by Potter et el., 1984; Chen, 1990; De Groot et al., 1994), the revised hierarchical model (Kroll, & Cureley, 1988; Chen & Leung, 1989; Kroll & Stewart, 1994), and the bilingual interactive activation model plus (Ton Dijkstra & Walter Van Heuven, 1998), see Chapter 1 for details. For the present study, two of the models reviewed are relevant: the RHM and the BIA+ models. First, the RHM proposes that vocabulary can be processed in many ways, i.e., via the L1 for novice bilinguals or via the concept for more advanced bilinguals. Notice that the RHM has been presented in the literature as a production model as stated by Kroll, van Hell, Tokowicz, and Green (2010): RHM "was not primarily a model of word recognition but a model of word production" (p. 2). However, RHM has been taken into account in the present study because it is assumed that learners need to process vocabulary first in order to produce it. This model has found a correlation between proficiency level and the mode to process vocabulary has been presented--lower bilinguals use the L1 to recognize vocabulary, and proficiency bilinguals use the concept. For the present study, the RHM predicts that second semester English monolingual students of Spanish will process cognates via their L1, given their low proficiency level in Spanish. I would like to propose that degree of word similarity between cognates is also a determining factor in addition to proficiency level. I predict that words with greater similarities, such as similar cognates, will be related to the concept but words with fewer similarities, such as partial cognates, will be related to the L1 word.

27

The second model pertinent to the present study is the BIA+ model. This model proposes that when a proficient bilingual reads a letter string (a word), several lexical candidates— regardless the language—are activated. Moreover, word recognition is affected not only by cross-linguistic orthographic similarity effects, but also by cross-linguistic phonological and semantic overlap, as well as the type of instruction or the language chosen for the task. Within the present study, BIA+ model has been proposed to understand if phonology overlap occurs while recognizing vocabulary. The model predicts that phonological overlap may induce inhibition, that is, there is a negative influence of phonological similarities on word recognition. Think-aloud protocols (TA) will be one method used to interpret students' answers while they are in the process of recognizing cognates (TA procedures are explained in more detail in Chapter 3). The act of providing a TA protocol is seen by the experimenter as a factor that could influence participants' performance; however, no literature has been found to support this idea. If the influence is positive, this could mean that think aloud can help students recognize and process cognates. It is possible that the act of saying the cognates aloud could improve comprehension of those words because it may help participants realize that the L2 word is similar to the L1 word. However, as BIA+ model suggests, phonological interference can arise and have a inhibit effect.

CHAPTER 3 METHODOLOGY

Participants

Ninety-one native-English speaking students enrolled in Elementary Spanish II at Auburn University participated in the study; two of them were eliminated from the analysis because they did not follow instructions during the experiment. The remaining 89 participants carried out the study during one session in their eighth week of their second semester of Spanish, and they received extra credit for their participation. Although and effort was made to have the same number of participants in each group, the final groups resulted in unequal cell size: Control Group had 22 participants, Group 1 had 28, Group 2 had 13, and Group 3 had 26. According to the characteristics that students presented in the background questionnaire, the final division was primarily based on whether or not participants had been exposed to Spanish before FLSP 1010, that is, if they had studied Spanish before starting at Auburn University. Two groups were created to make a distinction between participants who were exposed to Spanish. One group included those who had studied Spanish during one or two years, and another included those who had studied Spanish during three or four years. The other main division was based on whether or not they had studied another language before. In general, most of the participants did not study any language other than Spanish in high school. There was not a large difference between the total number of participants who studied only one or two years, and the total number who studied three or four years in high school. The characteristics of each group are shown in Table 3, Appendix A. To avoid Hawthorne effects, all FLSP 1020 were asked to participate.

Experiment design and materials

As pointed out in Chapter 1 and 2, an explanation of what is considered a cognate and a clarification of what is meant by "similarity" between words are needed. The following definition and characteristics of a cognate were developed in this investigation: a cognate is considered to be an item with a shared orthography, phonology, meaning and etymology in two languages, in this case Spanish and English. In this work we do not consider borrowings as cognates, (e.g., bar – *bar*; yogurt – *yogur*) due to the fact that borrowings are new words inserted in the language lexicon, and they have not suffered the same historical evolution as cognates introduced in the language centuries back. False friends are not included either in this study because they do not share similar meaning and they are not the focus of the present research. In addition, a proprietary scale of orthographic similarities between words was applied as follows:

1. Cognates that are orthographically identical are referred to as **identical cognates** ("mural"–"*mural*").

2. Cognates that differ by only one letter or when one letter in the English word is replaced by two consecutive letters in its Spanish equivalent are referred to as **similar cognates** ("inherent"–"*inherente*"; "civilization"–"*civilización*"; "family"-"*familia*").

3. Cognates that differ by two non-consecutive letters or more than two non-consecutive or consecutive letters are referred to as **partial cognates**: ("conclude"–"*concluir*"; "access"-"*acceder*").

These orthographic similarities or differences are counted from English to Spanish; an orthographic difference includes the addition ("list"-"*lista*"), elimination ("bl**o**use"-"*blusa*") or changes ("tomat**o**"-"*tomate*") of letters. Accent marks do not impact the classification, e.g., "utopia"–"*utopia*" are considered identical cognates. Phonological representations are also taken

into account. For example, the letters "ph" (as in "telephone") are counted as only one letter for the purposes of designating cognate status in the similarity scale. The pair "telephone"–"*teléfono*" was considered a similar cognate because these words differ by two so-called letters: the "ph" and the final "e".

A minimal level of similarity has also been considered in the partial cognates. At least three of the same letters have to remain. An example of a cognate that has not been classified as partial for this study is that of "luxury"-"*lujo*". These words share meaning and etymology (from Latin, "*luxus*"), but do not share enough orthographic similarities to be readily identify as cognates.

To solve the methodological issues mentioned in Chapter 2, cognates were given in a context related to the material students regularly see in class. This fact is important because the goal of this research is to contribute to the understanding of the acquisition process within the classroom. With this in mind, the text that was used was an advertisement about three vacation travel offers. The text developed for use within this experiment, follows the characteristics (topic; grammar expressions and verb conjugations; vocabulary; and length–number of words) that have been established for the students' level (basic) by the National Council of State Supervisors for Languages (NCSSFL). In other words, students could encounter a text like this within their classroom environment. Another methodological issue that has been addressed in the present study is the number of cognates that students found during the experiment. The number of words was not a demanding cognitive effort for them related with their level: the total number of cognates was 69 and 308 words for the total text. In terms of cognate frequency, each cognate only appeared once in the text.

The cognates to be used in the three-advertisement texts were tested in a pilot before the experiment was completed. The aim of the pilot was to find out if the cognates selected for the main experiment were easy or difficult to recognize. To measure this, 208 students (divided into 15 classes) enrolled in Elementary Spanish I were tested. Not one of them was included in the main study. To carry out the test, three word lists were created, one list for each "Travel offer text". Sixty percent of the words were cognates and 40 percent were distractors—non cognate words. The total number of words distribution that appeared in each list is shown in Table 2, Appendix A. A computer program was used to randomize the words lists: http://www.random.org/lists/. Each list was presented to 5 classes, and students were asked to translate every word that they could recognize from Spanish to English. Included with the list was a background questionnaire to clarify previous experience of these FLSP 1010 students (all documents are included in Appendix C, under Pilot documents). As a result, words that were translated correctly by more than 40 percent of the students were considered very easy to recognize, probably because they were words that they already knew for the classes; therefore they were eliminated and replaced by other words in the main experiment.

In the full scale experiment, the final advertisement texts that participants were shown contained a total of 308 words. Sixty-nine words (verbs, nouns and adjectives) were cognates: 21 were identical cognates, 23 were similar cognates, and 25 were partial cognates (see Table 1, Appendix C, under Experiment documents).

Participants answered 17 comprehension questions in multiple-choice format. The questions and answers were in English and tried to focus on the cognate vocabulary. The text was divided into three parts or three travel advertisements (Sahara desert, Brazil and Egypt) and a small conclusion. Participants read one part first, then answered 5 questions; next they read the

additional part, and then answer another 5 questions; the third text was presented afterwards followed by another 5 questions; finally the small conclusion appeared, and after this part participants answered 2 additional questions. The questions were presented in the order that the information appeared in the text.

Participants were presented with the stimuli, the three vacation offer texts, using E-prime 2 Professional, and responded using both a keyboard and microphone. Two types of programs were created to account for the two experimental conditions, one for the Control Group and Group 1, and another for Group 2 and Group 3.

Procedure

All participants read an identical text and answered, in English, the comprehension questions. Participants worked with the text differently depending on their group. All participants had two hours to carry out the tasks, however, some groups used less time than others due to their different experimental demands.

Groups

Participants were divided randomly into four groups: the control group (CG), Group 1 (G1), Group 2 (G2) and Group 3 (G3).

Control group: Participants silently read the text in a computer screen and answered the comprehension questions. This is a typical activity that students would encounter in the classroom and beginner textbooks, in an effort to represent what students usually do in the classroom.

Group 1: Participants processed with a think-aloud (TA) protocol. They read the text in the computer screen and answered the comprehension questions aloud verbalizing their thoughts

while being recorded as they completed the session (for more details about TA, see "Think-aloud protocol" below).

Group 2: Participants had a different set of instructions. First, they saw the text word by word in the computer screen. Reading the text word by word was intended a text-scanning activity that many teachers use in their classrooms where students search for particular words that they know or can recognize. They were asked to respond "yes" or "no" depending on whether or not they could recognize the word that was presented on the screen. If they responded "yes", the next screen asked them for a written a translation of the word they saw before; if they responded "no", they skipped this step and moved to the next word. After reading the text word by word, the complete text appeared and participants read it again and answered the comprehension questions. This group was exposed twice to the cognates.

Group 3: Participants used a combination of the instruction set for Group 1 and Group 2. They participated using a TA protocol and saw the text word by word in the computer screen, translating the words that they recognized first. Afterwards they saw the whole text and answered the comprehension questions.

The translation task that Group 2 and Group 3 carried out was focused on recognizing and processing cognates, the main aim of this research. The TA protocol, used by Group 1 and Group 3, was used in order to know what students were thinking while reading or answering the questions, and these data has been used to analyze how students pronounce the cognate vocabulary.

Think-aloud Protocol

In the think-aloud protocol, participants were asked to read the text presented in the computer screen aloud and to verbalize their thoughts while reading, translating words, and answering the comprehension questions. Each participant received special instructions and practiced prior to beginning the study. The participants were given a three-sentence paragraph in Spanish to read aloud and were asked to say whatever passed through their minds as they read. Once training was completed, participants began the target reading task. Oral data was collected using headsets and Audacity software.

Scoring Procedure

Variables: The dependent variables tested were participants' 1) answers related to words translated, and 2) responses to the comprehension questions. The independent variables tested were 1) the type of cognates (identical, similar, and partial cognates), and 2) instructions given to groups (CG, G1, G2, G3).

Two separate methods--quantitative and qualitative--were used to analyze the data. In the quantitative scoring method, using Excel spreadsheet participants were awarded 1 point for each correct answer and 0 points for each incorrect answering. In this method for the translation task, spelling inaccuracies such as "*casions*" instead of "casinos", "*elixer*" for "elixir", "*instraments*" for "instruments", "*collosel*" or "*colosal*" for "colossal", or "*pharoes*" for "pharaohs", were counted as correct answers because these misspellings can be attributed to the difficulties of spelling within the English language. The number of correct answers for each condition was compared. An analysis of variance (ANOVA) was carried out to determine if there were significant differences between answers and groups. However, the present study is limited by the small number of participants in G2 (13 participants) in compare to G3 (26 participants).

Qualitative analyses were applied to the incorrect answers. Two types of incorrect answers were identified: Participants either incorrectly translated the word, or chose not to respond at all. Among the incorrect translations, a pattern was noticed, so those semi-incorrect answers have been taken into account as well. A semi-incorrect translation was defined as a word in which a phonological pattern is detected in more than two participants when translating. For example, some participants translated "*occidental*" as "accidental", or "*precio*" --"price"-- as "precious". TA protocols were used to support the analysis of the findings.

CHAPTER 4 RESULTS

The focus of the present study is cognate recognition and processing. In order to measure the results, two types of data analyses were carried out: A quantitative analysis using an Excel spreadsheet and a qualitative analysis. For the quantitative analysis two data sets were collected, one from the responses to the reading comprehension task and the other one from the cognate recognition task. The qualitative analysis was executed by utilizing the incorrect answers from the cognate recognition task.

As mentioned before, in order to analyze the comprehension question results, all responses were entered into an Excel spreadsheet. The total correct and incorrect answers produced by each group and the corresponding percentages are shown in Table 4, Appendix A. Results do not reflect a substantial difference between groups in terms of the comprehension assessment: All the groups answered correctly approximately 65 percent of the comprehension questions, and about 35 percent of the questions were answered incorrectly. An analysis of variance (ANOVA) was carried out to determine if there were significant differences between groups. It revealed that these differences were not significant with a P value of 0.50 (see Table 5, Appendix A).

In particular to the analysis of the comprehension questions, the correct and incorrect responses of each group (Control Group (GC), Group 1 (G1), Group 2 (G2) and Group 3 (G3)) were compared. Recall from Chapter 3 that in Groups 2 and 3 participants saw the text word by word first, then read the whole text and answer questions while participants in the CG and G1 only read the whole text once before answered the questions. Results show that participants in Groups 2 and 3 were slightly more successful at accurately responding to the comprehension question task (achieving 67 and 68 percent of the total answers correct respectively) than CG and G1 (achieving 66 and 63 percent of the total answers correct respectively). In fact, G1 had the

lowest number of correct answers: 63 percent; and G2 had the highest number of correct

answers: 68 percent, but these differences were not significant with a [P=0.22].

In addition, to explore the effects using a Think Aloud protocol might have had on the

comprehension, a statistical comparison between the responses of the Groups 2 and 3 (which

used TA) and Control Group and Group 1 (which did not use TA) was conducted. No significant

differences were found with a P value of 0.22. Interestingly, when groups that had the same text

conditions are compared, (CG vs. G1, or G2 vs. G3) groups that used TA (G1 and G3) were

slightly less successful at correctly answering the comprehension questions. However, these

differences were found not to be significant by an ANOVA [P=0.21].

The second data set derived from the present study pertains to cognate recognition. That

is, to the English translation provided by participants in Groups 2 and 3. Recall from Chapter 3

that in this study cognates were classified into three types: A) Cognates that are orthographically

identical are referred to as **identical cognates** ("mural"–"*mural*"). B) Cognates that only differ

by one letter or when one letter in the English word turns into two consecutive letters in its

Spanish equivalent are referred to as **similar cognates** ("inherent"–"*inherente*"; "family"-

"*familia*"). C) Cognates that differ by two non-consecutive letters or more than two non-

consecutive or consecutive letters are referred to as **partial cognates**: ("conclude"–"*concluir*";

"access"-"*accede*"). To measure the differences between **identical, similar, and partial**

cognates, two different analyses were conducted. First, all the correct and incorrect translations

produced by participants in Groups 2 and 3 were compared. As mentioned in Chapter 3,

complete credit was also given to misspelled words, such as "elixer" for "elixir", "excurcion" for

"excursion", or "pecular" for "peculiar" which can be attributed to the difficulties of spelling

within the English language. As shown in Table 6, Appendix A, results suggested that words that

have more similarities, such as **identical** or **similar** cognates, were easier to recognize than words that do not share as many scripts, such as **partial** cognates. Specifically, 68 percent of the **identical** cognates were answered correctly; 55 percent of the **similar**; and 37 of the **partial**. In order to test if these differences were significant an ANOVA test was carried out. Overall the test reflects a significant difference for cognate degree of similarity with a P value < 0.001 (see Table 7, Appendix A). In addition, significant differences were found between **identical** and **partial** cognates [P<0.001], and between **similar** and **partial** cognates [P<0.0001]. However, no significant differences were found between **identical** and **similar** cognates [P=0.20].

Comparing groups 2 and 3 and conditions (G2 did not use a TA protocol and G3 used a TA protocol), results indicate that G2 performed better on **identical** cognates [P=0.86], but there were no significant differences between **similar** [P=0.38] and **partial** cognates [P=0.34] and groups' outcomes.

Proper nouns such as "*Sahara*", "*Tarzán*", "*Aladín*", "*Brasil*", etc., were inserted into the text but to do the data analysis these proper nouns were not taken into account because as proper names they refer to unique people or places. However, these proper names can be categorized as identical, similar, or partial cognates, so an additional analysis focused on proper names was carried out because it was explore that students did not perform well with these words regardless of the word similarities. Results are shown in Table 8, Appendix- A.

The second type of data analysis conducted was qualitative, which focused on the incorrect translation given by the participants. As presented in Chapter 3, incorrect responses involved either the production of an incorrect translation of the Spanish word, or no response. In terms of cognate processing, the revised hierarchical model (Kroll, & Cureley, 1988; Chen & Leung, 1989; Kroll & Stewart, 1994) introduced in Chapter 1, was used to explore if students use

their L1 to process the visual word or if they use the concept. Notice that this model, although proposed in the literature as a production model, has implications for the present study. In particular, it predicts that novice students will rely on their L1 to process cognates. However, results showed that participants used the concept to translate certain words, (see Table 9, Appendix A). This has been observed because students did not use the English word while translating, but the concept. Seventy-seven percent of the participants who translated the word "*Sahara*" did it into "desert"; 25 percent translated "*Aladín*" into "Disney character", and 9 percent translated "*Tarzán*" into "Disney character", as well as 13 percent of the participants who wrote a translation translated "*anaconda*" into "snake".

Furthermore, some of the incorrect translations followed a pattern related to phonological overlap, so those answers have been taken into account as well. A phonological overlap translation was defined as a word in which a certain phonological pattern is identified in more than two participants when translating. For instance, participants translated "*occidental"* as "accidental", *"directos"* as "directions" or "director", "*peculiar"* as *"*movie"—*"película"* in Spanish--, or "*leyendas"* ("legends" in English) as "they are reading".

It has been interesting to note the translation of two words that could be classified as phonological overlap translation but they do not fit in that category because they were produced by only one participant instead of at least of two. An additional table with these two words has been added (see Table 10, Appendix A).

Finally, the audio obtained from the TA protocols was used to clarify how students pronounced the words, and what they were thinking while reading. As was detected within the Questions section, neither the TA group nor the non-TA group produced substantially different results while translating the target words.

CHAPTER 5 DISCUSSION

The research questions investigated in this study sought to explore cognate recognition and processing in second language acquisition. First, the experiment tried to clarify whether or not cognates can facilitate reading comprehension. Reading comprehension results do not reflect a noticeable difference between groups nor do they reflect any kind of impact based on the degree of cognate similarity—**identical**, **similar**, and **partial** cognate. In addition, results do not demonstrate a significant influence based on the different conditions, e.g. whether using a Think Aloud protocol while reading the text or not. A problem with the applied method may be the main reason for the lack of differentiation between conditions and groups. It is possible that the questions that were created for this experiment did not accurately assess cognate comprehension. A better way to assess whether or not cognates can facilitate or inhibit reading comprehension could be by using a different text for the Control Group with a reduced number of cognates and compare it with a text similar to the one used in the present experiment.

Another topic addressed in the present study pertain to cognate recognition and cognate degree of similarity. The following questions were explored: 1) Whether or not second semester native English-speaking students of Spanish as an L2 recognized cognates in the written form; 2) whether or not cognate degree of similarity had an effect on recognition; and 3) whether or not these similarities could predict their performance. As it has been presented in the literature review, Spanish textbook publishers and some researchers (Costa et al., 2000; Hall, 2002, 2009; Holmes & Guerra, 1993; Hoshino & Kroll, 2008; Tercedor, 2010; Tonzar et al., 2009; Sherkina-Lieber, 2004) have assumed that cognates are easy words to recognize. Nevertheless, results obtained from this study provide support for the hypotheses discussed in Chapter 1 and 2. As Lightbown et al. (1984), Tréville (1996), and Harley et al. (1986) proposed in their articles, the

results of the present investigation suggest that participants do not recognize cognates as easily as presumed. First, students did not recognize all the cognates displayed in a text and, second, the results indicate that there is a relationship between the hypothesis that students do not recognize cognates easily and the orthographic similarity between the English/Spanish words, which I have classified into three different categories: **identical**, **similar**, and **partial** cognates. A significant difference was detected in the results between **identical**, **similar** and **partial** cognates. **Identical** cognates were recognized significantly more often than **similar** and **partial** cognates; and recognition of **similar** cognates was significantly higher than **partial** cognates. This shows that the degree of similarity between cognates has an effect on novice-level Spanish students' recognition and processing of vocabulary items. That being said, words that have more similarities, such as **identical** or **similar** cognates, were significantly easier to recognize and process correctly than words that do not share as many graphemes, such as **partial** cognates.

On the basis of these results, all cognates should not be considered as having the same characteristics and impact on the learners. As mentioned before, researchers who worked with cognates did not classify the characteristics or similarities between them. For example, Friel and Kenninson (2002) and Sherkina–Lieber (2004) carried out a study using a 7 point scale task and a 10 point scale task, respectively, to classify cognates' similarities; however, they did not create any classification based on the outcomes. As a result, what authors named as cognates were actually a collection of words with very different characteristics and different ranks of difficulty. Results from this study show that not all cognates are recognized and processed at the same level. Consequently, we cannot consider cognates as easy words to recognize solely because they share graphemes in common in both languages. Furthermore, even though **identical** cognates had the highest number of correct translations, in many cases they were not translated correctly

by the participants with only a 68 percent of correct responses. Notice that a 68 percent correct translation rate should not be taken as a substantial number of correct translations when the target L2 word and the L1 word share the same spelling in both languages.

There are several factors that can influence the participants' performance; one being their familiarity with the target L1 word. The cognates chosen for this study are words with Latin and Greek origins and some of these words are not frequently used in everyday English speech; usually they are used in very formal settings. For example, none of the participants could correctly translate the identical cognate "*occidental*". "Occidental" is an English word, however, English speakers generally use the term "Western". Another identical cognate that presented problems for participants was "*irascible*"; only one participant was able to translate it correctly. "*Afable*" was also categorized as an identical cognate. Although the English and Spanish forms differ by one letter (given that English "affable" has an additional "f"). The double grapheme was counted as one sound [f] which causes the word to be classified as an identical cognate. Only three students could translate it correctly. In common speaking, people do not use these terms (generally speakers use "cranky"-"grumpy" for "irascible", or "friendly" for "affable"). Nevertheless, words such as "*popular*", "*agenda*", "*cafeteria*", "*ideal*" and "*anacondas*", were correctly identified by almost 100 percent of participants who were able to give the correct English equivalent. These words are more common in regular and everyday conversation. Therefore, familiarity and similarity with the L1 word are both important in cognate recognition. Due to this fact, it is also important to be aware of how different cognates can appear between languages and how frequently they are used in everyday speech.

As in the comprehension questions, there were not significant differences between groups and conditions (i.e., group that did not use a Think Aloud protocol, and group that used a Think

Aloud protocol) in terms of cognate recognition. Group 2 and 3 performed similarly; however, participants that used a TA protocol performed slightly worse than participants who did not use this method. This is an interesting outcome because even when significant differences are absent, TA protocol did not positively influence their performance as was originally thought. Nevertheless, one reason for this outcome could be that the students did not properly follow the instructions while using Think Aloud protocol.

In addition to the cognate recognition, the present study focused on cognate processing, using a qualitative data analysis. Two processing models were used to explore this topic: The Revised Hierarchical Model (RHM) and the Bilingual Interactive Activation plus model (BIA+). First, in terms of the RHM, the findings of the present study seem to contradict the predictions of this model presented early. RHM proposed by Kroll and Stewart (1994) suggests that novice learners used their L1 to process L2 vocabulary words and in doing so, predicted that participants in the present study would process cognates using their L1. However, certain words with more similarities, such as *"Sahara", "Tarzán", "Aladín", and "anaconda"*, were related with the concept by some of the participants. These participants did not translate "*Sahara*" as "Sahara", they translated it as "desert"; "*Tarzán*" or "*Aladín*" as "Disney character", and "*anaconda*" as "snake." That being said, several participants used the concept to process the word instead of using their L1. These results support the hypothesis presented in Chapter 2 stating that degree of similarity would play a role in cognate processing.

The second processing model used in the present study the BIA+ model, assumes that word recognition is affected not only by cross-linguistic orthographic similarity effects, but also by cross-linguistic phonological overlap. As Dijkstra's et al. (1999) model predicted, results from this study show cross-language effects of phonological overlap between words. This

phonological overlap seems to produce a negative influence on a participant's ability to recognize a word due to phonological similarities between words, both crosslinguistically and within their L1. The audio obtained by the TA protocol, shows a strong English pronunciation influence, probably because of participant's novice level. These pronunciations are thought to have had a particular effect: it seemed that participants looked sometimes for a word in their L1that was similar to the pronounced word and stopped paying attention to the written word. Support for this conclusion is found in some audio recordings in which participants said: "This sounds like ____"; and yet, none of them said "this word *looks* like _____". The analysis showed that participants provided incorrect answers for certain words and the pronunciations of these words sounded much more similar to the English pronunciation. For example, they pronounced "accidental" for the Spanish word "*occidental",* "directions" or "director" for "*directo",* or "naturalize" for *"naturaleza",* all of which are incorrect. In addition, the TA data analysis revealed that in many cases participants looked for a Spanish word with similar spelling and/or sound. For instance, while reading "*leyendas"* ("legends" in English) they interpreted it as "*leyendo"* ("they are reading"), for "*peculiar"* they pronounced "*película"* ("movie" in English) or for "*area"* they pronounced *"arena"* ("sand" in English). This phonological interference while reading a word has been taken into account by Dijkstra's et al. (1999), but it was not mentioned in the aforementioned studies exposed in Chapter 1. However, it provides a very interesting potential research area.

Some interesting observations were made after listening to the audio recordings created by the participants who used a TA protocol. First, most of them said several times: "I don't know how to spell this, but I mean _____". This supports the decision to give complete credit to misspelled words, such as "elixer" for "elixir", which can be attributed to orthographic

difficulties within the English language. Another important consideration was that there were considerable differences between students while reading and processing a word. Some participants took their time, tried to make connections with external things or activities, or talked about how the word sounded. For example, with the word *Occidental* one participant said: "occidental, occidental…that sounds like an accident, accidental, occidental…I'm not really sure." However, other students just read the word and said: "I think this means _____" or "I don't know this word." The important point to take from these findings is that some students look for similarities in order to recognize a word, and what the audio reveals is that they often look for these relationships based on the pronunciation. Also, as Leow (2011) confirms, there are different levels of awareness and diverse types of attention that can also affect L2 recognition and comprehension.

Another finding that was not predicted in the hypotheses, but drew my attention, was the relation to the suffix and correct/incorrect translations. A pattern within the correct answers was found. Most of the words that have the suffix "–*ion*" in Spanish, produced a high percentage of correct translations. For example, "*dimensión*", "*civilización*", and "*excursión*" were translated more accurately. However, words with an ending of "–*able*", such as "*afable*" or "*formidable*", and words ending with "–*eza*" such as "*naturaleza*" resulted in very low scores. These observations can be related with the aforementioned ideas that there are some words that are more common in every day speech, so their frequency is higher. Also, perhaps some suffixes are easier to recognize than others.

CHAPTER 6 CONCLUSION AND FUTURE RESEARCH

The presented study tried to recreate as closely as possible a classroom environment activity. A "travel offer" text which corresponded with the participants' language level was given to them to first read, and then they answered several comprehension questions. Reading the text word by word was an attempt to replicate a text-scanning activity that many teachers use in their classrooms where students search for particular words that they know or that they can recognize. The results of this study support the findings of Lightbown et al. (1984), Tréville (1996), and Harley et al. (1986) which concluded that students do not recognize cognates and, due to this, instructors should teach students how to recognize and work with cognates. As well, to believe that a cognate, only because of having a common root and shared graphics, is an easy word to recognize is to negate that there are multiple differences amongst cognates, and cognate characteristics. An important aspect of this study is the degree of similarities scale between cognates—**identical**, **similar**, and **partial**—and their effects on word recognition.

In terms of phonological overlap, the presented ideas have the potential of creating a new and interesting strand of research. Results show that phonology plays an important role while recognizing a written word.

This study could be reconfigured with comprehension questions that are more targeted to elicit a cognate response in an effort to clarify whether or not cognates aid in reading comprehension. Also, the present study can be modified using a Control Group with the same text as the other groups but with fewer cognates would be an interesting alternate technique to measure if cognates actually help or not with reading comprehension. The present study also is limited by the small number of participants in G2 (13 participants) in compare to G3 (26 participants). These data do not meet the assumptions of the ANOVA model. That is, the test is

47

less powerful. Future studies may equal the number of participants per group as much as they can to obtain ideal conditions.

For further research, it would be interesting to study the frequency of words in speech and students' familiarity with the target words. As mentioned before, not all cognates are easy words even when they are completely equal orthographically. One reason that has been considered as a cause of these results is that most of the presented vocabulary is not well-known terminology. As well as, it can be interesting to research whether or not the function of the word (nouns, verbs, adverbs, etc.) and the kind of prefix or suffix have an influence on cognate recognition. In addition, the assumption that students read a word and pay attention to the written form appears to be a weak point in this investigation and would benefit from further research.

The most important conclusion from this experiment is that target word recognition was significantly influenced by the type of cognate—whether the words were **identical**, **similar**, or **partial** cognates. Likewise, given the pedagogical implications, teachers should not assume that just because cognates are used will students recognize them. It is important to include more activities focused on word recognition in text-books or language curriculums to train students to identify cognates and use them appropriately.

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APPENDIX A

Tables

Table 1. Steeps to cover in the different models (Source: Adapted from Potter et el., 1984)

Word-association		Concept-mediation	
Translation	**Picture-naming**	**Translation**	**Picture-naming**
1. Recognize the word	1. Recognize the picture	1. Recognize the word	1. Recognize the picture
	2. Activate the concept	2. Activate the concept	2. Activate the concept
	3. Associate L1 concept to L1 word		
2. Associate L1 word with L2	4. Associate L1 word with L2 word	3. Associate the L2 word	3. Associate the L2 word
3. Name the word	5. Naming the word	4. Name the word	4. Name the word

Table 2 Distribution of cognates in pilot lists

	Identical	Similar	Partial	Total cognates	Non-cognates
List 1	7	7	8	22	14
List 2	7	8	8	23	14
List 3	7	8	8	23	14

Table 3. Characteristics of participants in each group

	No Spanish in High School	No Spanish in HS, but studied other language	Studied Spanish previously for 1-2 years	Studied Spanish previously for 1-2 years, and also other language	Studied Spanish previously for 3-4 years	Spanish previously for 3-4 years, and also other language	Total number of students
CG	1	1	7	1	11	1	22
G1	1	2	12	2	10	1	28
G2		2	3	3	5		13
G3		2	11	5	8		26
	2	**7**	**33**	**9**	**34**	**2**	

Table 4. Percentages of correct and incorrect answers per group

Type of group	Correct Answer	Percentage	Incorrect Answer	Percentage	Total Questions
CG	248	66%	126	34%	374
G1	302	63%	174	37%	476
G2	151	68%	70	32%	221
G3	298	67%	144	33%	442
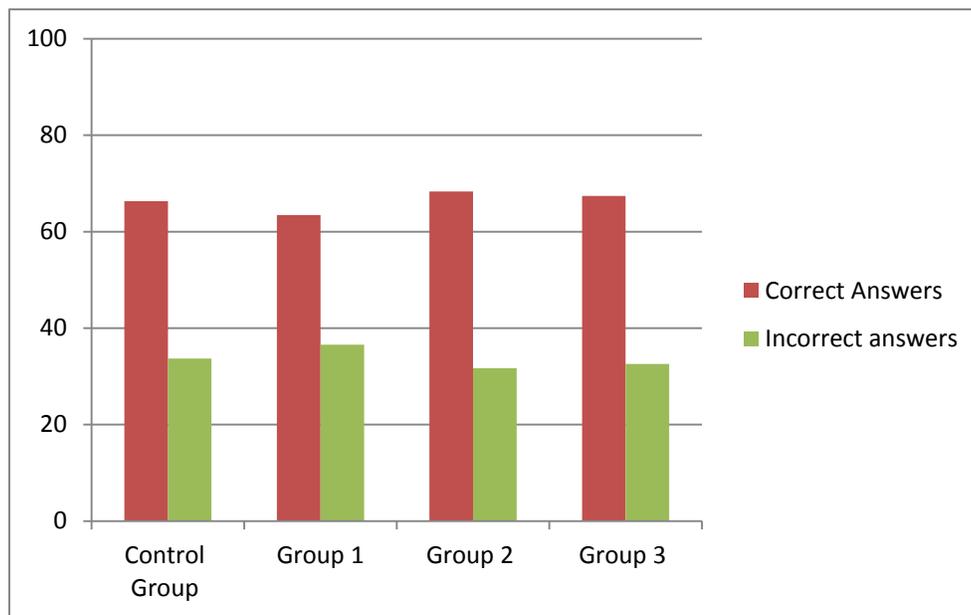
Table 5. Analysis of variance (ANOVA) of correct and incorrect answers

Source of Variation	df	MS	F	P-value	F crit
Between Groups	3	2.96307812	0.790485528	0.5025119	2.7119214
Within Groups	85	3.748428043			
Total	88				
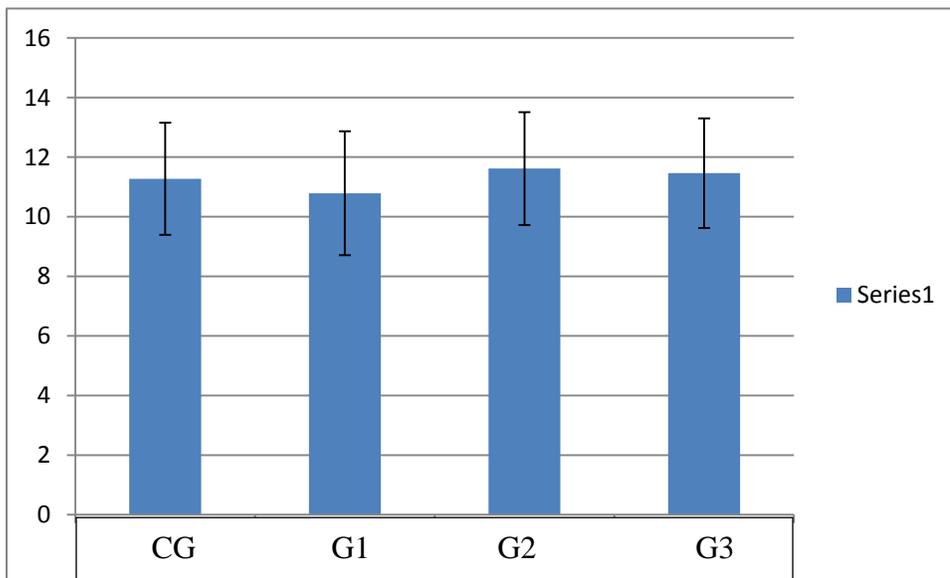
Table 6. Correct and incorrect answers based on type of cognates

|	Identical		Similar		Partial	
	Correct	**Incorrect**	**Correct**	**Incorrect**	**Correct**	**Incorrect**
G2	67	33	58	42	37	63
G3	68	32	58	42	37	63
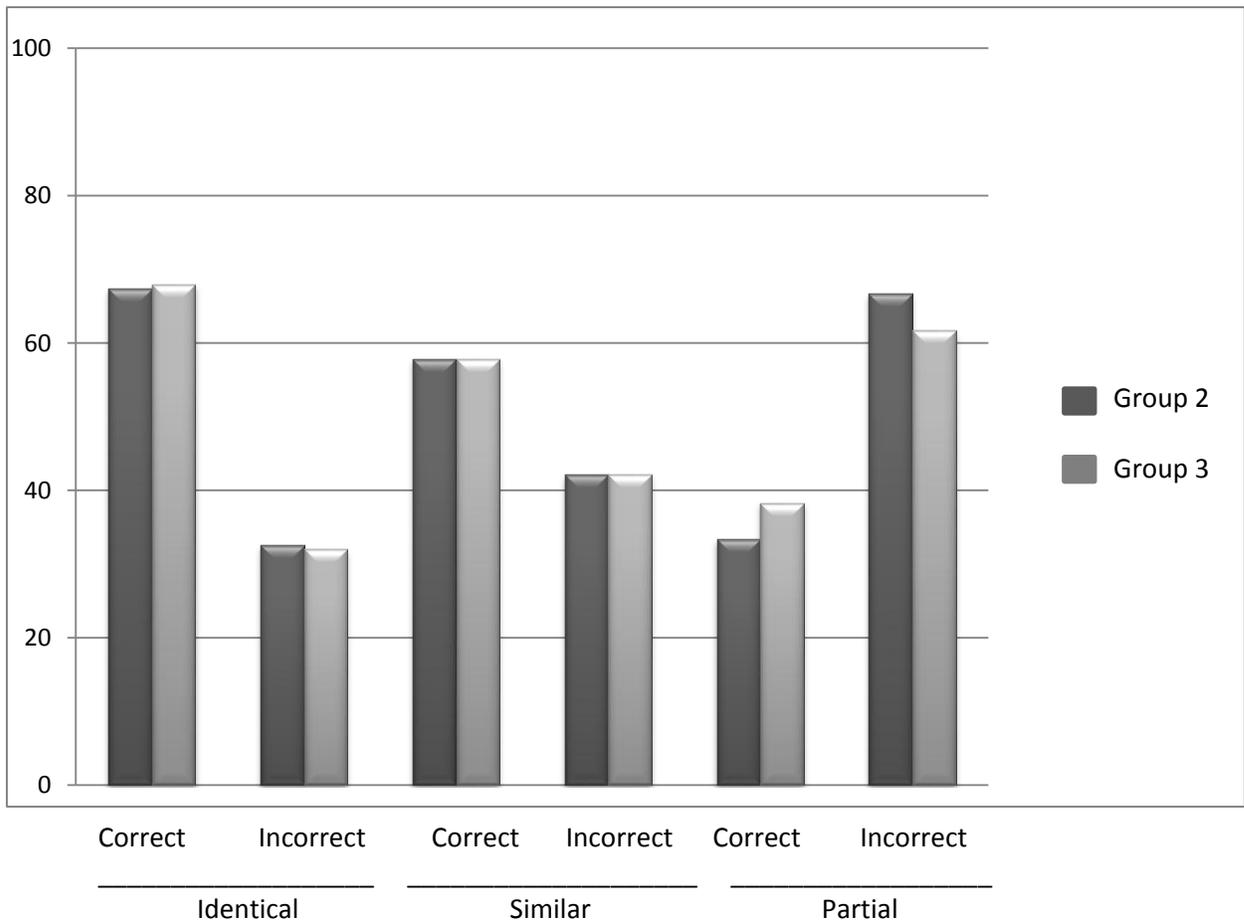
Table 7. Analysis of variance (ANOVA) of correct and incorrect answers based on type of cognates

Source of Variation	df	MS	F	P-value	F crit
Between Groups	2	327.8717949	27.183046	2.224E-10	3.0758526
Within Groups	114	12.06162843			
Total	116				
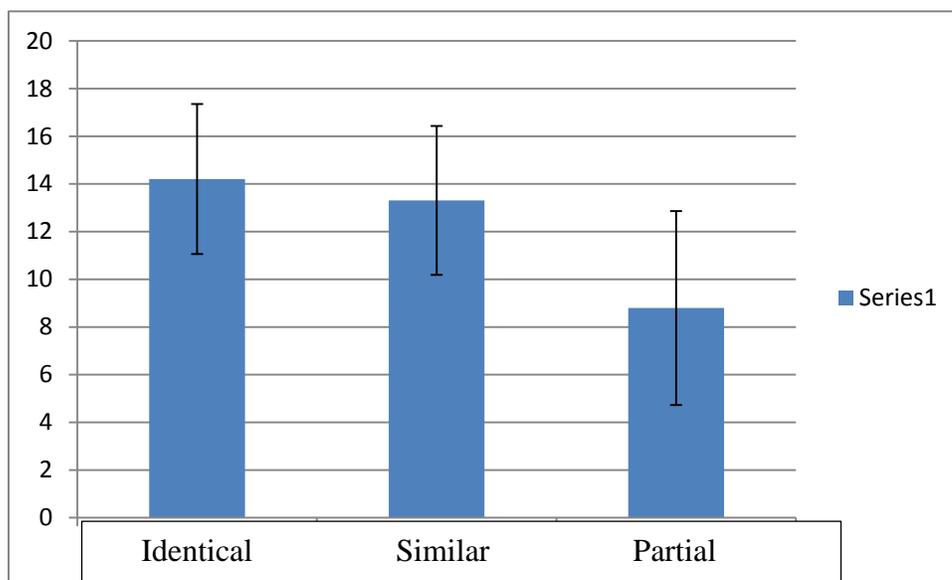
Table 8. Proper nouns percentages

|	Identical					Similar		Partial
	Sahara	**Aladín**	**Tarzán**	**Cairo**	**Sinai**	**Bereber**	**Brasil**	**Egipto**
Group 2	46	46	92	77	31	0	100	92
Group 3	50	46	88	77	27	0	96	69
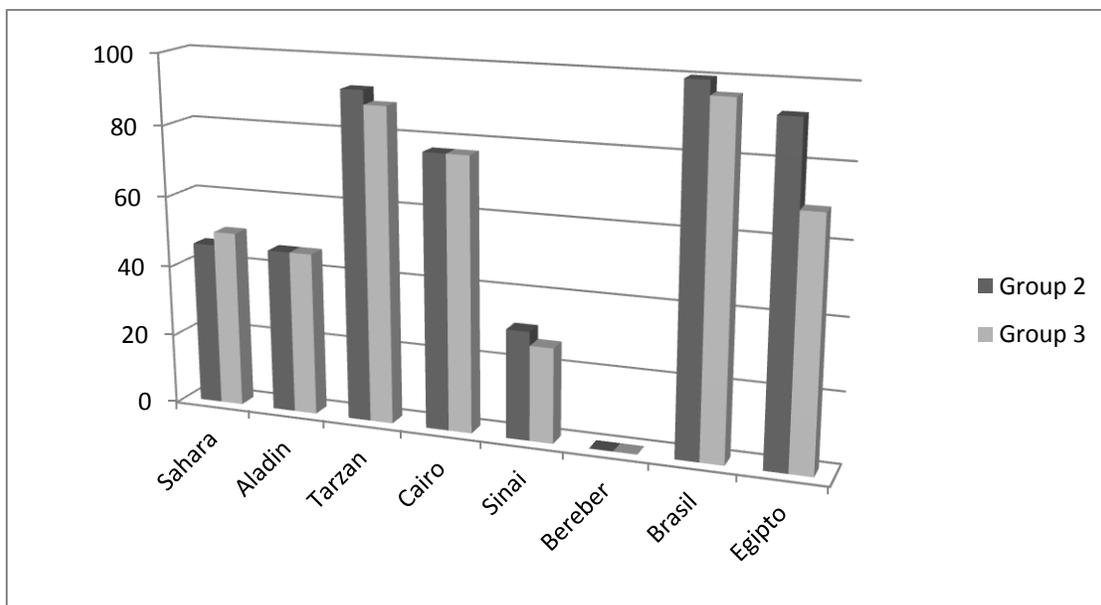
Table 9. Concept used to translate certain words

Spanish Word	Translation	Number of translations	Total number of tranlations	Percentage
Sahara	Desert	10	13	76%
Aladín	Disney character	3	12	25%
Anaconda	Snake	3	23	13%
Tarzán	Disney character	2	22	9%

Table 10. Words that showed phonological overlap

A) Primary phonological overlap words

Spanish word	Correct translation	Pronunciation	Phonological overlap	Pronunciation	Percentage
Occidental	Occidental	/ˌɒksɪˈdɛntl/	Accidental	/ˌæksɪˈdɛntl/	28%
Irascible	Irascible	/ɪˈræsəbəl/	Irresistible	/ˌɪrɪˈzɪstəbəl/	5%
Formidable	Formidable	/ˈfɔrmɪdəbəl/	Formulate – formable	/ˈfɔrmyəˌleɪt/ /ˈfɔrməbəl/	5%
Peculiar	Peculiar	/pɪˈkyulyər/	Movie		13%
Atípica	Atypical	/eɪˈtɪpɪkəl/	Anticipate	/ænˈtɪsəˌpeɪt/	10%
Gastronomía	Gastronomic	/ˌgæstrəˈnɒmɪk/	Astronomical	/ˌæstrəˈnɒmɪkəl/	8%
Subacuático	Subaquatic	/ˌsʌbəˈkwætɪk/	Suburban	/səˈbɜrbən/	5%
Directos	Direct	/daɪrɛkt/	Director-direction	/daɪˈrɛktər/ /ˈdaɪrɛkʃən/	41%
Descubrir	Discover	/dɪˈskʌvər/	Describe	/dɪˈskraɪb/	23%
Leyendas	Legends	/ˈlɛdʒənd/	They are reading		23%
Naturaleza	Nature	/ˈneɪtʃər/	Naturalize	/ˈnætʃərəˌlaɪz/	46%
Sarcófagos	Sarcophagus	/sɑrˈkɒfəgəs/	Sacrifices	/ˈsækrəˌfaɪs/	10%
Precio	Price	/praɪs/	precious	/ˈprɛʃəs/	31%

B) Additional phonological overlap words table

Spanish word	Correct translation	Pronunciation	Phonological overlap	Pronunciation	Percentage
Área	Area	/ˈɛəriə/	Sand		3%
Estresado	Stressed	/strɛsɪd/	interested	/ˈɪntərəstɪd/	3%

Figures

Figure 1. The three theoretical models (Source: Adapted from De Groot et. al, 1994)

Figure 1

1. Word association model

Figure 2

2. Concept association
   mediation model

Figure 3

3. Intermediate model
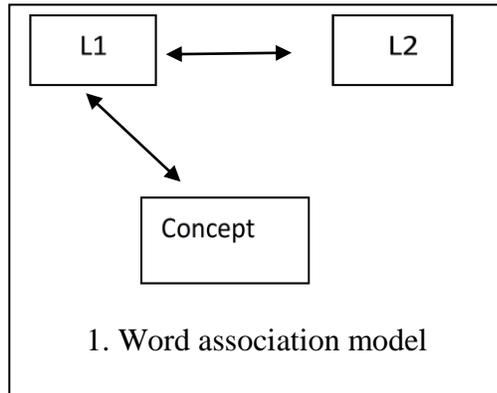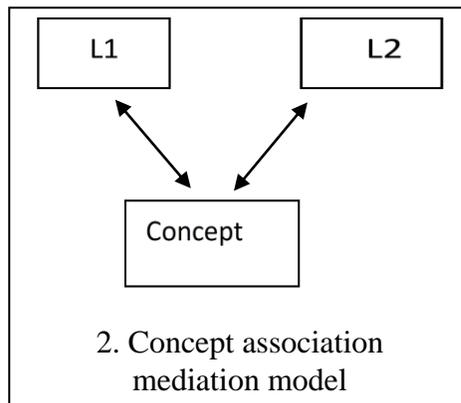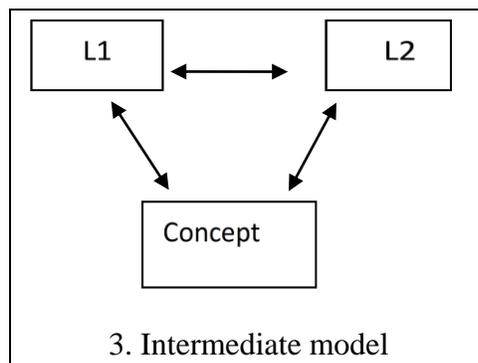
**Figure 2.** Bilingual interaction model (Source: Adapted from Dijkstra et al. 1998)
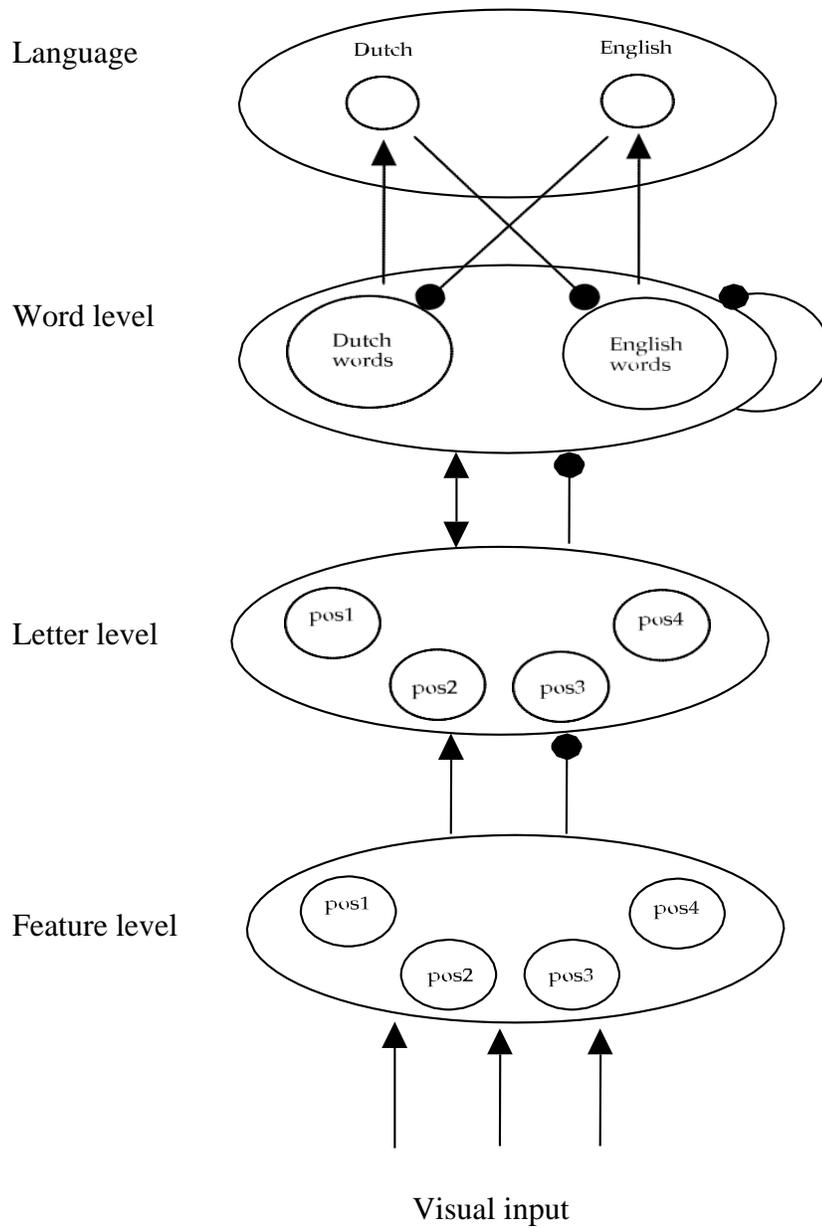
Figure 3. The BIA+ model. (Source: Adapted from Dijstra & Van Heuven, 2002)

Task Schema

- Specifies processing steps at hand
- Receives continuous input from the identification system
- Decision criteria determine when a response is made based on relevant codes

Identification system

Language nodes   L1/L2   Semantics

Lexical orthography phonology   Lexical

Sublexical orthography phonology   Sublexical

Visual input

66

Experiment documents

Table 1 Cognates that were presented in the study (proper nouns are in italics).

Identical	Similar	Partial
Text 1:	**Text 1:**	**Text 1**
Sahara	*Bereber - berber*	Descubrir – discover
Occidental	Civilización - civilization	Leyendas - legends
Aladín - Aladdin	Atípica – atypical	Desierto – desert
Dimensión - dimension	Rica - rich	Único - unique
Afable - affable	Incluye –include	Palmeras –palm trees
Popular	Excursiones- excursions	Dátiles –dates
Oasis	Instrumentos – instruments	Paraíso -paradise
Regional	Dunas -dunes	**Text 2:**
Àrea - area	**Text 2:**	Estresado – stressed
Text 2:	*Brasil - Brazil*	Desconectar – disconnect
Irascible	Tragedia – tragedy	Contemplar - contemplate
Ideal	Evento – event	Naturaleza – nature
Tarzán - Tarzan	Intrépido – intrepid	Tucanes - toucans
Anacondas	Virgen – virgin	Cocodrilo – crocodile
Cafeterías – cafeterias	Jungla – jungle	Accede – Access
Agenda	Tabernas – taverns	**Text 3:**
Cruel	Opulentas – opulent	*Egipto – Egypt*
Colosal – colossal	**Text 3:**	Faraones – pharaoh
Text 3:	Seducir – seduce	Invitamos - invite
Elixir	Melodías - melodies	Conquistar – conquer
Cleopatra	Visita - visit	Culmina - culminate
Sublime	Gastronomía – gastronomy	Admirando – admiring
Cairo	Subacuático - subaquatic	Momias - mummies
Formidable	Pirámide – pyramid	Sarcófagos - sarcophagus
Casinos	Explora - explore	
Sinaí - Sinai		Precio – Price
Coral	Directos - direct	Ofertas - offers
Introduce	Excepto – except	Aeropuerto – airport
Peculiar		
Madrid		
Casablanca		

Easy Viajar (**115 Magnolia Avenue, Auburn, AL).**

Texto 1.

Viaje 1. El *Sahara* **Occidental.**

Si quieres descubrir el mundo de *Aladín*, escuchar las leyendas de los *bereberes*[1] y ver otra dimensión, este viaje al desierto es para ti. Conoce una única y vieja civilización con gente atípica, pero también muy afable.

El viaje incluye varias excursiones; la más popular es al oasis Tangounite con altas palmeras. Aquí puedes comer la rica comida, como el *tajine* de pollo y dátiles, o comprar instrumentos de artesanía regional**.** Viaje también a las dunas de Erg Chegaga*,* en el área de AbhDakla. ¡Todo un paraíso!

Texto 2.

Viaje 2. La selva[2] de *Brasil***.**

¿Te sientes estresado? ¿Estás irascible? Si buscas desconectar del trabajo y de la tragedia diaria, éste es el viaje ideal. No lo pienses más y ven a vivir el evento de tu vida. ¡Siéntete como *Tarzán*! Disfruta de un viaje intrépido a la selva virgen donde puedes contemplar la naturaleza: tucanes, loros, anacondas, cocodrilos, etc.

En este viaje vas a acceder a la jungla, así que olvídate de las tabernas, cafeterías y casas opulentas. Siete días para olvidar la agenda, los profesores o el jefe cruel. Un viaje colosal.

Texto 3.

Viaje 3. El elixir de la vida.

Egipto es el país de Cleopatra y los faraones. ¡Déjate seducir por el sublime paisaje, los sabores y las melodías encantadoras! Visita la ciudad El Cairo, donde te invitamos a disfrutar de su gastronomía, de su formidable gente y de sus casinos.

Bucea por el mundo subacuático del Sinaí y déjate conquistar por su arrecife[3] de coral. Culmina tu viaje admirando las pirámides de Keops, Kefren y Micerinos. Explora estos edificios e introduce tu mente en un mundo peculiar de momias y sarcófagos.

Precio de las ofertas: Sahara – 1100 €; Brasil -800 €; Egipto – 1200 €.

Todos los vuelos son directos desde el aeropuerto de Madrid, excepto el vuelo al *Sahara* con escala en Casablanca.

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[1] Desert tribe.

[2] Rain forest.

[3] Reef

English Text.

Easy Viajar **(115 Magnolia Avenue, Auburn, AL).**

Travel 1. The *Sahara* Occidental.

If you want to discover *Aladdin*'s world, listen to *Berbers*' legends and see another dimension, this trip to the dessert is for you. Get to know a new and unique civilization with atypical, but very affable people. The trip includes several excursions; the most popular is to the Tangounite oasis with tall palm trees. Here you can eat the delicious food, like *tajine* with chicken and dates, or buy regional instruments. Another trip is to the Erg Chegaga dunes in AbhDakla area. A **real paradise**!

Travel 2. The rainforest of Brazil.

¿Are you stressed? ¿Are you irascible? If you are looking to disconnect from work and daily tragedy, this trip is ideal. Do not think about it anymore and come to **experience** the event of a lifetime. Feel like *Tarzan*! Enjoy an intrepid trip to the virgin rainforest, where you can contemplate the nature: toucans, parrots, anacondas, crocodiles, etc.
In this trip you are going to access to the jungle. Forget taverns, cafeterias, and opulent houses. Seven days trip to forget the agenda, your teachers or a cruel boss. A colossal trip!!

Travel 3. The life elixir.

Egypt is the country of *Cleopatra* and pharaohs. Let yourself be seduced by the sublime landscapes, its flavors and its charming melodies! Visit the city Cairo, where we invite you enjoy its gastronomy, its formidable people, and casinos. Scuba-dive around the sub-aquatic world of *Sinai* and let yourself be conquered by its coral reef. Culminate your trip admiring the pyramids of Keops, Kefren and Micerinos. Explore these buildings and introduce your mind to a peculiar world of mummies and sarcophagus'.

Travel offers' prices: *Sahara* – 1100 €; *Brazil* -800 €; *Egypt* – 1200 €.
All flights are direct flights from Madrid airport, except the flight to *Sahara* that stops in *Casablanca*.

Questions:

1. **El Sahara Occidental.**
1. **What can you enjoy from the *Bereberes*?**
    a. Their dances and music
    b. Their flying carpets
    c. **Their legends**

2. **What adjectives better describe the people of the Sahara?**
    a. Distinct and friendly
    b. All of them are family
    c. **Easy going and just like Westerners**

3. **Which is the most famous tour of the Sahara?**
    a. **The oasis of Tangounite**
    b. The dunes of Erg Chegaga
    c. None of the above

4. **Which are the ingredients in *tajine*?**
    a. Chicken and grapes
    b. **Chicken and dates**
    c. Chicken and plums

5. **What can you buy from the *Bereberes*?**
    a. **Musical instruments**
    b. Bracelets and necklaces
    c. Local handcrafts

2. **La selva de Brasil**
1. **What is the goal of this trip?**
    a. To meet new people
    b. **To disconnect from family and daily drama**
    c. To enjoy wild animals

2. **What type of trip will this be?**
    a. It will be a relaxing journey
    b. **It will be an exciting trip**
    c. It will be a boring trip

3. **What are you going to be able to see?**
    a. **Nature and animals**
    b. Skyscrapers and business men
    c. Resorts and beaches

4. **What are you NOT going to find in the jungle?**
> a. **Luxury homes**
> b. Crocodiles, iguanas, parrots, toucans, etc.
> c. Nice weather

5. What will this trip make you forget?
> a. The trip schedule
> b. Your back pack, the guide will give you one
> c. **Your horrible bosses and teachers**

6. **El elixir de la vida**

1. What things will entice you?
> a. **The landscape, flavors and charming melodies**
> b. The handsome and pretty Egyptians
> c. Fast-paced taxi drivers

2. What did the Cairo advertisement say you would enjoy?
> a. **Food and different smells**
> b. Drinking liqueurs
> c. Scuba diving

3. What things will you be able to encounter?
> a. New species of fish
> b. The foundations of undiscovered pyramids
> c. **Ancient buildings and mummies**

4. At what point of the trip will you see the pyramids?
> a. At the beginning
> b. At the middle
> c. **At the end**

5. How is the new world that you can discover?
> a. It is boring
> b. It is unusual
> c. **It is magic**

5. **General questions**

1. Which flight is NOT a direct flight? Where does it stop?
> a. All of them are direct flights
> b. **The flight to Sahara is not direct; it stops in Casablanca.**
> c. The flight to Brazil is not direct; it stops in Madrid

2. Which trip is the least comfortable?
> a. Sahara
> b. **Brazil**
> c. Egypt

Pilot documents

Background Questionnaire

Answer every question. If a question does not apply to you, write "N/A".

1. Age_____
2. Class year: Freshman / Sophomore / Junior / Senior
3. Major_____
4. Minor_____
5. What do you consider your native language(s) to be? _____
6. How old were you when you were first exposed to Spanish? _____
7. On a scale from one to seven, seven being *excellent*, please select your level of proficiency in terms of *understanding spoken Spanish by a native Spanish speaker.*

                  1   2   3   4   5   6   7

8. High school Spanish (circle all that apply or add to the category *other* if applicable. If you did NOT take Spanish classes while in high school, circle N/A here):

    Spanish I   Spanish III   Spanish V

    Spanish II   Spanish IV   AP Spanish/IB Spanish

    Other: _____

9. College Spanish (circle all the Spanish courses, indicating whether they were taken on campus or abroad. Add to the category *other* if applicable):

    Elementary I (on campus / abroad)

    Elementary II (on campus / abroad)

    Intermediate I (on campus / abroad)

    Other _____

10. On a scale from one to seven, seven being *very much*, please select how much the following factors contributed to you learning Spanish:

                  1   2   3   4   5   6   7

Interacting with friends: _____   Interacting with family: _____

Reading: _____   Taking language courses: _____

Language tapes / self-instruction: _____   Watching TV: _____

Listening to the radio: _____   Being immersed in a Spanish-speaking country: _____

11. Travel to Spanish-speaking countries:

Country:	Length of time:	Reason (e.g. vacation, Spanish language course, dad worked there):	Use of Spanish while in the country:

12. Other languages studied or spoken:

Language:	Length of time studied or spoken:	Use of the language (in what ways do you or did you used to engage in the language?):

13. Other language experience not mentioned above:

14. Did you study abroad last Summer 2011?   Yes / No

15. If so, what location?   Costa Rica / Salamanca / Madrid

Text.1. Read the list of words. Circle the ones that you can recognize, and give its English translation.

1. Cartera _____

2. Lápiz _____

3. Palmeras _____

4. Viaje _____

5. Oferta _____

6. Popular _____

7. Oasis _____

8. Descubrir _____

9. Diferente _____

10. Incluye _____

11. Rica _____

12. Desierto _____

13. Tapa _____

14. Gente _____

15. Dunas _____

16. Región _____

17. Local _____

18. Sartén _____

19. Productos _____

20. Familiar _____

21. Paraíso _____

22. Único _____

23. Artesanía _____

24. Nueva _____

25. Mesa _____

26. Mundo _____

27. Dátiles _____

28. Quieres _____

29. Cultura _____

30. Repollo _____

31. Comer _____

32. Leyendas _____

33. Dimensión _____

34. Excursiones _____

35. Escuchar _____

36. Occidental _____

Text.2. Read the list of words. Circle the ones that you can recognize, and give its English translation.

1. Verde_____
2. Ven_____
3. Iguana_____
4. Drama_____
5. Desconectar_____
6. Estresado_____
7. Vivir_____
8. Tropical_____
9. Cocodrilo_____
10. Cafeterías_____
11. Irritable_____
12. Observar_____
13. Jungla_____
14. Lujo_____
15. Casas_____
16. Siete_____
17. Temperatura_____
18. Tucanes_____

19. Loro_____
20. Pienses_____
21. Día_____
22. Aventura_____
23. Accede_____
24. Directo_____
25. Moderno_____
26. Disfruta_____
27. Trabajo_____
28. Ideal_____
29. Cesta_____
30. Memorable_____
31. Restaurante_____
32. Selva_____
33. Naturaleza_____
34. Vida_____
35. Precio_____
36. Extremo_____
37. Vela_____

Text.3. Read the list of words. Circle the ones that you can recognize, and give its English translation.

1. Natural_____

2. Guapo_____

3. Excepto_____

4. Recomendamos_____

5. Aroma_____

6. Seducir_____

7. Conquistar_____

8. Sarcófagos_____

9. Bucea_____

10. Vista_____

11. Mundo_____

12. Paisaje_____

13. Faraones_____

14. Pirámides_____

15. Momias_____

16. Casinos_____

17. Sientes_____

18. Viaje_____

19. Música_____

20. Bolígrafo_____

21. Arrecife_____

22. Peculiar_____

23. Color_____

24. Sabor_____

25. Gastronomía_____

26. Coral_____

27. Mente_____

28. Encantador_____

29. Explora_____

30. Culmina_____

31. País_____

32. Admirando_____

33. Introduce_____

34. Submarino_____

35. Déjate_____

36. Gente_____

37. Aeropuerto_____