

## THE EFFECT OF CULTURAL FAMILIARITY ON INCIDENTAL VOCABULARY ACQUISITION THROUGH READING

Diana Pulido

Email: dpulido@wsu.edu

### Abstract

---

The study examines the effects of cultural background knowledge on immediate incidental vocabulary gain through reading brief narratives that depicted either culturally familiar or culturally unfamiliar versions of everyday scenarios. Participants were high-intermediate adult learners of Spanish. Independent variables included (a) cultural familiarity, (b) group assignment, and (c) L2 passage sight vocabulary. The dependent variable was an adapted version of the Vocabulary Knowledge Scale (VKS), (Paribakht & Wesche, 1993). Each narrative contained 5 nonsense words depicting concepts frequently associated with the scenarios. Results of an ANCOVA revealed significant effects of cultural familiarity whereby vocabulary gains were greater after participants read within the culturally familiar versions of the scenarios. No significant effects were obtained for the variables of group or of L2 passage sight vocabulary, although a significant positive correlation was obtained on one passage. The discussion concerns the impact of the factor of cultural familiarity. Methodological issues are discussed.

---

It has been argued that most if not all vocabulary development (in the L1 or L2) occurs as learners attempt to comprehend written input (Krashen, 1989, 1993a; Nagy, 1997). However, there still remain gaps in our knowledge about how various factors affect the process of acquiring vocabulary through reading. Research on second language reading and incidental vocabulary acquisition, or the phenomenon of "picking up" words as a by-product of reading, has found that vocabulary gains through reading are highly related to the level of comprehension attained from reading (Jacobs et al., 1994; Pulido, in press; Rott, 1997). This finding corroborated native language literacy studies, which have reported that the rich indeed got richer; that is, there was a reciprocal relationship between word recognition skills and sight vocabulary, on the one hand, and reading ability on the other (Stanovich, 1986). Whether or not similar Matthew effects are observed for explicit aspects of L2 vocabulary development through reading is an empirical issue for second language acquisition (SLA) research investigating incidental vocabulary acquisition. It is natural, then, to question whether or not some of the factors that have been found to affect L2 reading and text processing also have a similar impact on L2 vocabulary development through reading.

Interactive theories of reading view native and second language reading as a complex cognitive process, one in which the reader, using previous knowledge, interacts with the information in the text to construct and integrate meaning (e.g., for L1 see Daneman, 1996; Kintsch, 1998; Perfetti, 1985; Rumelhart, 1977; Stanovich, 1980, 2000; for L2 see Barnett,

1989; Bernhardt, 1991; Carrell, Devine, & Eskey, 1988; Lee, 1997; Nassaji, 2002; Swaffar, Arens, & Byrnes, 1991). During reading there is simultaneous cognitive processing involving pattern recognition, letter identification, lexical access, concept activation, syntactic analysis, propositional encoding, sentence comprehension, intersentence integration, activation of prior knowledge, and comprehension monitoring (Perfetti, 1985). The quality of processing a text affects the nature of, quantity, and quality of linguistic items that may be acquired through such processing.

## **Review Of Research**

### **Reader-based Factors Involved In Text Processing, Comprehension, And L2 Incidental Vocabulary Acquisition**

**Background Knowledge.** As described above, reading is a complex cognitive process involving the construction and integration of information. One of the components of processing a text is the activation of and use of appropriate knowledge structures, or background knowledge, stored in long-term memory. In psychological and SLA research there are abundant accounts of the robust role of background knowledge on text processing, reading, and memory (e.g., Bartlett, 1932; Bernhardt, 1991; Carrell et al., 1988; Ellis, 2001; Graesser, Singer, & Trabasso, 1994; Kintsch, 1998; Lee, 1997; Lockhart & Craik, 1990; Mandler, 1984; Nassaji, 2002; Robinson, 1995; Rumelhart, 1980; Schank & Abelson, 1977; Steffensen, Joag-Dev, & Anderson, 1979; Swaffar et al., 1991). Greater levels of background knowledge and expertise in a given subject matter contribute to the efficiency of attentional allocation during reading, enabling richer analyses and textual interpretations, and, in turn, superior memory performance. Studies specifically addressing L2 text comprehension corroborated findings from native language reading research, namely, that text recall was enhanced when learners possessed and utilized the appropriate background knowledge, whether it was knowledge associated with a particular subject matter, or culture (e.g. Alderson & Urquhart, 1988; Barry & Lazarte, 1998; Carrell, 1987; Chen & Donin, 1997; Hudson, 1982; Johnson, 1981; Steffensen et al., 1979; Zhang, 1993). For example, in the Steffenson et al. study when readers were familiar with the specific cultural norms and rituals pertaining to an event or scenario (e.g., a wedding) they were more successful at interpreting the text in comparison to when they were unfamiliar with the cultural event. When readers were unfamiliar with the foreign culture's traditions they tended to construct meaning in light of their native norms, rituals, and beliefs. This resulted in unsuccessful interpretation of the text. This is a widely reported phenomenon that has negative consequences for the construction of microstructures during text processing, that is, of the specific relationships among ideas presented within the text. Thus, cultural background knowledge should also be expected to play a significant role in vocabulary development through reading.

In the realm of vocabulary development through reading, similar positive effects of conceptual and background knowledge have been obtained in native language reading (e.g., Diakidoy, 1998; Nagy, Anderson, & Herman, 1987). In these studies, when children were familiar with the concepts depicted in the texts, they gained more vocabulary associated with these concepts than when they were unfamiliar with them. However, for second, or foreign language reading the research demonstrating similar effects of background knowledge is scant. The vast majority of the studies have focused more on the processes involved in vocabulary development through reading, rather than on the memory for such products per se. For example, there have been numerous studies on lexical inferencing,<sup>1</sup> which is considered to be one of the component processes involved in vocabulary acquisition through reading (e.g., Ellis, 1994b;

Hulstijn, 2001, 2003; Sternberg, 1987). Lexical inferencing studies, which assessed or observed L2 learners' ability to guess the meaning of unfamiliar words during reading, have reported variable effects of background knowledge. On the one hand, when reading expository texts some studies observed that L2 participants from a variety of L1 language backgrounds all used background knowledge in the process of inferring the meanings of unfamiliar words encountered in these texts (e.g., Chern, 1993; De Bot et al., 1997; Haastrup, 1989; Lee & Wolf, 1997; Paribakht & Wesche, 1999; Parry, 1993, 1997; Rott, 2000). In narrative reading, similar positive effects of background knowledge were obtained in a controlled study to assess the effects of topic familiarity on lexical inferencing and vocabulary retention, after a study phase (Pulido, 2002). In this study L2 learners of Spanish were more successful at inferring meanings of new words when they were encountered within a scenario with which they were more familiar (e.g., going grocery shopping) in comparison to a scenario which was less familiar (e.g., publishing an article).<sup>2</sup> In a study on lexical inferencing in sentential contexts, Adams (1982) found that when instructing L2 participants to infer the meaning of certain words, they were more successful when they were aware of the topic of the sentence. However, a few studies have also reported that learners appealed infrequently to background knowledge, or used it inappropriately, when inferring the meaning of unfamiliar words while reading expository texts (Bensoussan, 1992; Huckin & Bloch, 1993; Haynes & Baker, 1993).

There are some limitations to these studies that warrant additional investigation of the effect of background knowledge on vocabulary development through reading. First, the findings above are based upon a methodology that explicitly focused learners' attention to either inferring specific words, or any unfamiliar words within the texts. This approach might have prompted participants to activate background knowledge or use strategies and offer inferences that might otherwise have been suppressed during natural reading, when learners choose where and when to focus their attention. Second, all but one of these studies relied on expository texts, often concerning difficult themes. Both of these characteristics may have curtailed the opportunity for learners to appeal to background knowledge in the first place to the extent they might have were they assigned narrative passages. Also, with the exception of Adams (1982) and Pulido (2002) none of the studies cited above actually assessed the degree of familiarity with the topic, or studied within subject performance on texts varying in their degree of familiarity to the readers. Finally, the conclusions from all but one of these studies, (Pulido, 2002), suggest which strategic processes may be completed and which knowledge sources may be accessed in the course of incidentally acquiring vocabulary, but they ultimately fall short due to the lack of any tests to measure the presence or absence of any such gain that ensued from having processed such texts. Thus, in these studies it has been largely speculated that the inappropriate use of background knowledge during reading and lexical inferencing should have negative effects on developing accurate form-meaning connections for the new lexical items.

Two studies have considered, in controlled experimental paradigms, the specific effects of prior background knowledge on incidental vocabulary acquisition of nonsense words. The first study addressed retention of inferred lexical items after a study phase to confirm or correct the target word inferences, with a cross-section of university Spanish learners (Pulido, 2002). Although the participants were explicitly instructed to infer meanings for new lexical items, and then subsequently to confirm or correct the inferences during an online sentence evaluation task, they were not forewarned about the two vocabulary gain tests that were administered shortly afterward. The results revealed that more target words (TWs) were remembered from the more familiar story scenario in comparison to the less familiar story scenario when participants' level

of passage sight vocabulary and L2 reading proficiency was taken into account.<sup>3</sup> In a separate study, with a cross-section of L2 learners of Spanish from beginning-advanced levels, Pulido (2000, 2003) examined the effects of topic familiarity on incidental vocabulary gain through reading four brief narratives that depicted more familiar (e.g., going to the doctor, going to the grocery store) or less familiar scenarios (e.g., buying a home, publishing an article). Results revealed that vocabulary gains were initially greater when participants of all levels of proficiency, also determined via passage sight vocabulary and L2 reading proficiency, read brief narratives depicting more familiar topics in comparison to less familiar topics. However, this effect disappeared over time. These results were obtained from a multiple choice measure tapping participants' ability to recognize L1 translation equivalents of nonsense words.

The two studies cited above, although focusing on narrative reading, exclusively investigated background knowledge of everyday scenarios within the context of the native language culture. However, everyday scenarios occur in all cultures, and certain scenarios can even be considered to be universal, such as going grocery shopping or registering for classes, in the case of university students. It might be expected that the nature of the events involved, and their ordering, be different from one culture to the next. Since the activation of appropriate knowledge structures stored in long-term memory is necessary to successfully construct and integrate meaning across discourse, it stands to reason that it will also have a strong bearing on the construction of meaning at the lexical level. In the course of reading, cultural background knowledge pertaining to the way in which everyday scenarios and routines are played out within a particular culture should influence the nature of the inferences constructed for unfamiliar words, and thus affect the form-meaning connections that are ultimately constructed for these new words.

**L2 Passage Sight Vocabulary.** Reading, being a complex cognitive skill, also entails the use of linguistic knowledge in the course of constructing meaning from text. A type of linguistic competence also known to contribute to text processing, comprehension, and incidental vocabulary acquisition is vocabulary knowledge associated with the texts that are being processed. Readers must have efficient strategies for acquiring information from texts. Aside from the use of domain knowledge, other determinants of reading success include decoding<sup>4</sup> ability and language skills. Outcomes in reading performance can also be explained by individual differences in these areas. Strong readers tend to have more efficient decoding skills and larger sight vocabularies than weak readers. Their syntactic and local propositional encoding<sup>5</sup> abilities are also superior in comparison to weak readers. For strong readers the automaticity demonstrated in lower level processing<sup>6</sup> frees up attentional resources to enable the construction and integration of ideas from context, the access and use of information from long-term memory, and, in turn, a greater likelihood of successful lexical inferencing to resolve the meaning of unfamiliar words. In contrast, weak readers tend to be inefficient decoders with smaller sight vocabularies. Their local propositional and syntactic encoding abilities are underdeveloped, thus constraining the access and use of information in long-term memory. For these readers both local and global comprehension is likely to be hampered. Weak readers are also more apt to experience difficulty, and often failure, in the construction and integration of ideas from context. This breakdown in comprehension frequently translates into a short-circuit of the lexical inferencing and integration process, thereby minimizing the chances for vocabulary development through reading, (e.g., Bernhardt, 1991; Bensoussan & Laufer, 1984; Daneman, 1996; Just &

Carpenter, 1992; Kintsch, 1998; Koda, 1996; Laufer, 1997a; Perfetti, 1985; Segalowitz, 1986; Stanovich, 1986; Swaffar et al., 1991).

Laufer (1997a) has discussed the robust relationship between general vocabulary knowledge and reading success and has argued that for L2 readers the "threshold for reading comprehension is, to a large extent, lexical" (p. 21). This suggests that there is a threshold vocabulary needed to be able to transfer L1 metacognitive reading strategies to the L2 reading task. Previous L2 research has provided robust evidence that general vocabulary size<sup>7</sup> is a strong indicator of reading success (e.g., Coady, Magoto, Hubbard, Graney, & Mokhtari, 1993; Haynes & Baker, 1993; Koda, 1989; Laufer, 1992a; Laufer & Sim, 1985a, 1985b; Qian, 2002; Ulijn & Strother, 1990). Other studies have even demonstrated positive significant relationships between general vocabulary knowledge and vocabulary gain through reading (Haynes & Baker, 1993; Horst, Cobb, & Meara, 1998). However, this line of research says little about the relevance of vocabulary knowledge—specific to a given text—to text processing and language acquisition outcomes associated with processing that text.

The importance of vocabulary knowledge in text comprehension has also been underscored in studies investigating interactive-compensatory models of reading, in particular the interaction between vocabulary and prior knowledge. For example, research on the effect of difficult vocabulary on reading comprehension in both the L1 (Anderson & Freebody, 1983; Stahl & Jacobson, 1986; Stahl, Jacobson, Davis, & Davis, 1989) and L2 (Tuero, 1996) have failed to provide evidence for interactive-compensatory models of reading. Instead, these studies concluded that the effects of background knowledge and vocabulary difficulty were independent. That is, when a text contained difficult or unfamiliar vocabulary, comprehension was still hindered, regardless of whether participants were reading within a familiar topic. In this case, there is likely to be correspondingly less available context to support the access to knowledge stored in long-term memory and the construction of a mental representation needed for successful comprehension. Although in the presence of unfamiliar or difficult words learners may still demonstrate ability to understand the general message of a passage they will likely experience difficulty in understanding the relationships among ideas presented, and therefore be unsuccessful at constructing microstructures. The inability to understand the specific relationships among ideas contained within a text should negatively affect vocabulary development through reading. Thus, knowledge of vocabulary specifically related to the passage at hand, hereafter referred to as passage sight vocabulary, is expected to be even a more influential factor in the process of acquiring new vocabulary through reading.

There are also several lines of research suggesting that passage sight vocabulary is also a significant determinant of lexical gain through reading. In several lexical inferencing studies readers inferred the meaning of new words more successfully when they knew the vocabulary in the surrounding context of the passage (e.g., Na & Nation, 1985; Haynes, 1993; Haynes & Baker, 1993; Parry, 1997; Rott, 2000; Schouten-van Parreren, 1989). This was determined largely by anecdotal observations, in comparison to quantitative measurements of participants' level of passage sight vocabulary. When participants did not know the vocabulary in the surrounding context this resulted in a short-circuit in the lexical inferencing process.

A few studies that have measured or controlled for the amount of vocabulary that learners knew from the target passages prior to reading in order to ascertain the role of such knowledge in the gain of new vocabulary associated with reading such passages. In one study Pulido (2002) found that passage sight vocabulary was a robust predictor of lexical inferencing ability, as well as of subsequent lexical gains of meaning when a cross section of learners of Spanish read two

narratives, one depicting a more familiar and one depicting a less familiar everyday scenario situated within the native language culture of the participants. In this study, there were also inverse relationships obtained between the level of passage sight vocabulary and reading times of the target word sentences during a task to confirm or correct the guesses that participants' had previously made. That is, as participants' knowledge of the vocabulary of the context increased, the amount of time they spent processing the sentences containing the target words decreased. In another study, Pulido (2000, 2003) also obtained similar results when a cross section of learners of Spanish read four narratives, two depicting more familiar scenarios and two depicting less familiar scenarios, also situated within the native culture of the participants. In all of these studies there were positive significant correlations obtained between passage sight vocabulary, on the one hand, and lexical inferencing and vocabulary gain (as measured by translation production and translation recognition tests) on the other. In sum, the knowledge of the vocabulary that participants bring to bear to the task of constructing and integrating meaning during reading plays a significant role in their ability to make new form-meaning connections for new vocabulary as a result of processing the written input contained within the texts.

Based upon the review of literature, its limitations, and the dearth of investigation of the role of cultural background knowledge in incidental vocabulary acquisition, the present study investigates the nature of the impact of the reader-based variables of cultural background knowledge and L2 passage sight vocabulary when L2 learners are assigned an "incidental" task to read for comprehension. Are learners better able to map and integrate new vocabulary knowledge associated with familiar routine scenarios while reading, in comparison to unfamiliar versions of the same routine scenarios? Is their previous linguistic knowledge a significant predictor of new vocabulary gains?

### **Research Questions**

The following research questions guided the present study:

1. Is immediate L2 vocabulary gain greater after participants read narrative passages depicting culturally familiar versions of a scenario? Or culturally unfamiliar versions of the same scenario?
2. Is L2 passage sight vocabulary a significant predictor of immediate L2 vocabulary gain from reading narrative passages depicting culturally familiar and unfamiliar versions of scenarios?

It was hypothesized that cultural background knowledge would have a significant effect on immediate vocabulary gains such that gains would be significantly greater when participants read the culturally familiar versions of the scenarios in comparison to the culturally unfamiliar versions of the same scenarios, based upon the previously reported effects of background knowledge on L2 reading comprehension, lexical inferencing, and incidental vocabulary acquisition through reading. Given the results of Pulido (2000, 2002, and 2003), it was also hypothesized that passage sight vocabulary would be a robust predictor of gains such that as knowledge of the vocabulary associated with the passages increased, so would gains, regardless of whether or not readers read within the culturally familiar or unfamiliar versions of the scenarios. Although participants' ability to construct a rich mental representation should be facilitated by possessing the appropriate background knowledge, this knowledge source should not offset the importance of passage sight vocabulary in constructing and integrating meaning and lexical knowledge during reading. As passage sight vocabulary increases, learners should not only have fewer words to learn, but also more available context from which to support the access

of background knowledge and other linguistic information stored in long-term memory, lexical inferencing, and subsequent vocabulary gains.

## **Method**

### **Participants**

Twenty-three adult university learners of Spanish as an L2 served as participants (i.e., 17 females and 6 males). They were recruited from all sections of a high-intermediate level Spanish course (6th semester composition). This level of proficiency is described as having 300-600 hours of instructional contact (Lee, 1990b; Lee & Wolf, 1997). The participants of the present study had approximately 375 hours of university-level classroom instruction in addition to high school and, in some cases, grade school language courses. Participants completed a preliminary background questionnaire during the recruitment process. On the basis of the results of the questionnaire only participants who indicated the following were chosen to participate in the study: (a) native speakers of English; (b) no previous study or extended visits abroad to a Spanish-speaking country; (c) no previous cultural knowledge of Paraguay, the country depicted in the unfamiliar versions of the passage scenarios; and (d) did not grow up in a Spanish-speaking home, or spoke Spanish as a dominant language. Subjects were compensated \$6.00/hour for their participation.

### **Materials**

**Passages.** The texts that were used for the present study were four contrived narrative passages, two pertaining to two culturally familiar scenarios and two pertaining to culturally unfamiliar versions of the same scenarios (see Appendix A). The two scenarios, Registering for Classes and Grocery Shopping, pertained to culturally universal scenarios considered to be routine and very familiar to the participants of the study. That is, all participants were university students who engaged in the activities of registering for classes and going to the grocery store. The setting of the familiar versions of the two scenarios was the same university and university town where the participants were studying. Thus, the context was designed to be familiar based upon participants' daily experience and background knowledge. Whereas the setting of the unfamiliar versions of both scenarios was situated in the South American country of Paraguay. This country was chosen after determining that the students who would be serving as participants typically knew very little about Paraguay or the culture of the country. This aspect was controlled by selecting only those participants who indicated on the preliminary background questionnaire that they had no prior cultural knowledge of this country.

The actions that occurred within the familiar and unfamiliar versions of each scenario were determined through various methods. In keeping with the objective that the stories represented everyday scenarios, the contents of all stories were constructed in part via a script norm procedure and typicality judgment questionnaire (for a more detailed explanation see Bower, Black, & Turner, 1979; Graesser, Gordon, & Sawyer, 1979; Schank & Abelson, 1977). In the script norm procedure an independent sample of experts representing the pool of participants of the present study (i.e.,  $n = 21$  native English-speaking North American university students studying in the Midwest of the United States) wrote down at least 20 actions, in order of occurrence, that were typically associated with both scenarios, Grocery Shopping and Registering for Classes. This list was used to generate the familiar versions of the scenarios. In addition, a pool of participants from Spain (i.e.,  $n = 10$  native Spanish university students studying in Barcelona) were asked to complete a similar task and list actions typically associated

with both scenarios as they typically occurred in their country. The story bases were constructed around the most frequently occurring actions and their order of occurrence as reported in this script norm task. For the typicality judgment questionnaire another independent sample of participants representing the same cultural background as the participants in the study ( $n = 20$  American instructors of Spanish who were attending the same university as the participants) rated on a scale of 1-6 the degree of typicality of certain actions associated with the unfamiliar versions of each of the scenarios. These actions served as the contexts within which the target words were situated. The instructions prompted respondents to base their judgments on their knowledge and experience with these scenarios as they occurred in the Midwest of the United States. The results of the questionnaire indicated that all of the actions were deemed atypical to very atypical. Both the culturally familiar and unfamiliar versions of the two stories conformed to a temporally ordered set of activities pertinent to the scenarios at hand.<sup>8</sup> In addition, within each scenario there were particular roles and objects associated with the actions involved in the story. In sum, each familiar story was loosely centered around a script purported to be stored in participants' long-term memory (Graesser et al., 1994; Schank & Abelson, 1977).

The final versions of each story each contained 21 sentences. Seven sentences were exactly identical across both versions of each scenario and fourteen were different across both versions of each scenario (see Appendix A). For example, in the Registering for Classes scenario the second and third sentences of both the familiar and unfamiliar versions are identical:

- (1) Ahora tenía que pensar en qué asignaturas iba a elegir para el próximo año.  
Now, (she) had to think about which classes she was going to choose for the upcoming year.
- (2) Pero no sabía qué clases se ofrecían.  
But she didn't know what classes were being offered.

However, the fourth sentence of each version is different. In the unfamiliar version the actions represent what typically occurred in the unfamiliar culture based upon the responses of Spanish participants on the script norm task:

- (3) Así que María fue a la Facultad de Lenguas y Literaturas para comprar la parga [guía] que generalmente se vende por allí.  
So, Maria went to the Department of Languages and Literatures to buy the timetable that was generally sold there.

Whereas in the familiar version the actions represent what typically occurs in the native culture, based upon the script norm responses from participants representing the population of participants of the present study:

- (4) Así que Mary fue a la biblioteca de la universidad para buscar la parga [guía] que generalmente se encuentra por allí.  
So, Mary went to the university library to pick up the timetable that was generally found there.

There were similar numbers of propositions from one version of a scenario to the next, except when there were differences in the nature of the actions. For example, in the familiar version of the scenario of Grocery Shopping the customer makes for himself a comparison of the prices and quality of a product. However, in the unfamiliar version of the same scenario the store clerk makes the comparison of the prices and quality of the product for the customer. This particular difference entails the introduction of a new propositional argument into the unfamiliar version. In general, the Registering for Classes stories were slightly longer than the Grocery Shopping stories, both in sentence and overall length. Both the familiar and unfamiliar versions



contained a similar number of clauses headed by que. However, there were some structural differences. Due to the greater degree of personal interactions involved in the unfamiliar versions of each scenario, these versions contained more object pronouns than did the familiar versions of the same scenarios. For the same reason the unfamiliar versions contained fewer reflexive pronouns than did the familiar versions (see Table 1 for some structural comparisons).

**Table 1**  
**Comparison of Stories**

	Registering for Classes		Grocery Shopping	
	Familiar	Unfamiliar	Familiar	Unfamiliar
Length (words)	259	255	234	231
ASL <sup>a</sup>	12.33	12.14	11.14	11.00
<u>Que</u> clauses	4	4	3	3
Object pronouns	1	4	3	5
Reflexive pronouns	3	2	1	1

Note. <sup>a</sup> = average sentence length.

**Target Words.** Ten words, representing concepts most frequently associated with the story scenarios, were chosen evenly from among the two scenarios; that is, five per story (see Appendix B). The TW concepts used in the two passages were chosen on the basis of their high frequency association with either of the two script scenarios as observed on the script norm task described above. The ten words consisted of three verbs (script actions) and seven nouns (script props and roles). They were then substituted with nonsense words, which served as the TWs under investigation. Nonsense words were used to ensure that no learner had prior knowledge of the TWs. This approach has been used in research on L2 vocabulary acquisition (e.g., Chern, 1993; Haynes, 1993; Hulstijn, 1992, 1993; Lee & Wolf, 1997; Pulido, 2000, 2003). The nonsense words were invented words constructed according to the orthographic and morphological rules of Spanish. All derivational and inflectional morphemes were maintained. For example, the plural inflectional morpheme -s was retained between the TW noun numbers and the nonsense word taletos. Likewise, the inflectional morphemes reflecting person, number, and tense were maintained between the TW verb (she) chose and the nonsense word amandió. An attempt to use low-frequency synonyms was not possible for all of the target word concepts either because of the non-existence of them in the contexts intended by the passage, or because of morphological similarity of low frequency synonyms to the actual target words when any synonyms were available. Thus, using nonsense words was the only means possible to investigate the influence of cultural background knowledge in incidental vocabulary gain. The TWs were interspersed throughout the text. There were from two to four intervening sentences between one TW and the next. Each TW appeared only once in each story, thus the frequency of exposure to them was equivalent across all stores.

## **Independent Variables**

**Cultural Familiarity.** Cultural familiarity with the countries depicted in the each version of the two scenarios was determined in several ways. First, for the unfamiliar versions of the scenarios familiarity was determined via the background questionnaire. During the recruiting phase any potential participants who indicated on a preliminary questionnaire that they were familiar with the culture and practices of Paraguay were not selected. Second, all potential participants who had indicated study abroad or extended stay in a Spanish-speaking country were also not selected. Third, on the basis of the results from the typicality judgement questionnaire, which indicated that the actions involved in the unfamiliar versions were atypical for the given scenario, it was assumed that the participants who were ultimately selected would also consider the actions of the unfamiliar versions to be atypical and unfamiliar for those particular scenarios based upon their native culture background knowledge. Finally, on the basis of the results of the script norm and typicality judgement tasks, it was assumed that the participants would also be familiar with the actions depicted in the familiar versions of each scenario. Thus, the actions and ordering of events depicted in the unfamiliar versions were considered to be unfamiliar, while those depicted in the familiar versions were considered to be very familiar.

**L2 Passage Sight Vocabulary.** Previous knowledge and familiarity with the non-target vocabulary within each passage was tested via a combination self-report and translation (Spanish to English, L2-L1) measure. The first subcomponent consisted of a "yes"/"no" checklist to determine self-reported familiarity with the lexical item, while the second was a translation to measure previous knowledge of the meanings of words reported as being familiar. Since it was not feasible to test the translation of every single vocabulary item comprising each of the four passages, I counted the amount of new word tokens for each story. From this figure I estimated which words were likely to be known by all learners at the high-intermediate level. These words primarily included function words, (e.g., el/la - the, para - for, en - in, su - her/his, etc. ) and cognates (e.g., semestre - semester, conflicto - conflict, supermercado - supermarket, ingredientes - ingredients) . After excluding these items, the remaining percentage of non-target words selected from each story and randomly included in the test was similar from one scenario to the next, as follows: (a) Grocery Shopping- 23 words out of 106 new word tokens, accounting for 22% of all new word tokens; (b) Registering for Classes- 26 words out of 112 new word tokens, accounting for 23 % of all new word tokens. Knowledge of the non-target words of the passages were scored for receptive knowledge on a partial to precise continuum, using the following scale: (a) 1 point was awarded for knowledge of the word, indicated by accurate translations of words identified as familiar to participants; (b) .5 point was awarded for partial knowledge of the word, as indicated by partially complete translations of words identified as familiar to participants; and (c) 0 points was awarded for inaccurate knowledge of words identified as familiar to participants, indicate by inaccurate translations, or for words identified as unfamiliar to participants.

## **Dependent Variable**

**Incidental Vocabulary Gain.** Incidental vocabulary gain was measured via an adapted version of the Vocabulary Knowledge Scale (VKS) (Paribakht & Wesche, 1993) (see Appendix C). This self-report task is designed to tap various self-perceived and demonstrated levels of learners' vocabulary knowledge, ranging from unfamiliarity through recognition and some idea of the meaning, to the capacity to use the words in a sentence. The target words were presented

in scrambled order to remove any contextual information based on their order of presentation in the passages. The version of the task that was used in the present study varied from Paribakht and Wesche's in several respects. First, instead of probing learners' general familiarity and recognition of the target word via levels II and III, (e.g., "I have seen this word before, but I don't know what it means", and "I have seen this word before, and I think it means", respectively), the present adaptation prompted participants to report on their recognition of the specific TWs that were mentioned in the passages they had just read. Thus, the adaptations of levels II and III were worded in the following way: "I saw this word in the passage, but I...", for level II, and "I saw this word in the passage, and I...", for level III. The second change from the original 'Vocabulary Knowledge Scale' to the present version was in levels III and IV, which elicit the meaning of the target word. In the original version learners are given the option to either provide an English (native language) translation or a synonym in the L2 (Spanish). For the present study learners were required to provide only the English translation of the target word in items III and IV in order to prevent obtaining a less than complete picture of the learners' knowledge of the target words than if given the option to provide an L2 synonym. This decision was based upon the results of field-testing of the materials, when several learners admitted that, although they preferred to provide the answer in the L2, they sometimes found it difficult to find the right word because of the lack of vocabulary knowledge in the L2 to express the intended concept. The third, and last, change from the original 'Vocabulary Knowledge Scale' was based upon the recommendation of the test authors themselves. To prevent learners from providing a far too general use of the target word at level V, which later makes it difficult to evaluate whether or not they knew the specific meaning of the word, level V was modified to require learners to also provide a meaning for level IV if they also wrote a sentence in item V. The VKS instrument has a range of score from 1-5, depending on the levels of self-reported and demonstrated knowledge ascertained. For correct responses on level I, a score of 1 was awarded. For correct responses on level II a score of 2 was awarded. A score of 2 was also awarded for incorrect responses in levels III, IV, and V. A score of 3 was awarded if a correct English translation was given for levels III or IV. A score of 4 was given if the word was used in a sentence at level V with semantic appropriateness, but with inaccurate grammar. Finally, a score of 5 was given if the answer to item IV was correct and also if the word was used with semantic appropriateness and grammatical accuracy in a sentence at level V (Paribakht & Wesche, 1997). There were two forms used, each one corresponding to each of the two scenarios that each participant read. All five TWs appeared in each form exactly as they had appeared within the passages, however in a scrambled order.

### **Procedure**

All participants were assigned to one of four conditions. Participants in conditions 1 and 2 received the familiar version of the Grocery Shopping scenario and the unfamiliar version of the Registering for Classes scenario. The difference between these conditions was the order of presentation of the passages. Participants assigned to conditions 3 and 4 received the unfamiliar version of the Grocery Shopping scenario and the familiar version of the Registering for Classes scenario, with the difference between these conditions also being the order of presentation of the passages. Thus, to control for any effects that may have been due to ordering of the passages the presentation of the passages and the accompanying post-reading tasks were counterbalanced across all participants. In sum, each participant was exposed to a familiar and unfamiliar version and to each of the two story scenarios.

There were two separate data-gathering phases. During the first phase, conducted two weeks prior to reading the passages, all participants completed the following measures in the following order: (a) a background questionnaire, and (b) a L2 passage sight vocabulary test. The second phase was conducted approximately two weeks later in a laboratory and on an individual basis. During this phase the participants completed the remainder of the tasks. First, each story was read online using a computer program that presented one sentence of the story at a time. Prior to reading the passages, all participants completed a brief training phase to familiarize them with the process of reading on a computer. The text was presented in a self-paced sentence-by-sentence fashion, requiring the participant to press the space bar to advance to the next sentence in the text. Participants were reminded of several things during the training phase: (a) to press the space bar only when they had understood the sentence and wanted the next sentence to appear, (b) that it would not be possible to go back to previous sections of the text, and (c) that other sentences that had been previously read could not be displayed after pressing the space bar. These instructions were emphasized in order to encourage self-paced, yet careful, reading of the passages. Participants were instructed to read for comprehension and to expect to answer comprehension questions afterward. That is, prior to reading they were not warned about the vocabulary test that was to follow.

After reading each passage participants were called to a table away from the computer to complete the Vocabulary Knowledge Scale to determine vocabulary gain. The instructions were explained in a similar fashion to each participant. This task was also completed in a self-paced manner. After completing the vocabulary gain measure, each participant completed a retrospective think-aloud in order to reveal how they made sense of the passage and, in particular, the target nonsense words. The primary purpose of this task was to determine which knowledge sources participants used to determine the meaning of the TWs.<sup>9</sup> Research on L2 lexical inferencing has adopted this method of indirectly observing readers' lexical inferencing and reading strategies (Chern, 1993; de Bot, Paribakht & Wesche, 1997; Haastrup, 1989; Lee & Wolf, 1997). In this tape recorded task participants were given the story that they had just read on the computer and were instructed to read the passage aloud and to paraphrase each sentence orally in English. Additionally, they were told to stop whenever they encountered difficult phrases or a word that was unfamiliar and to describe what they thought the phrase or word meant. They were also prompted to explain how they dealt with these difficult phrases or unfamiliar words or concepts when they were initially reading the text on the computer. During the think-aloud participants were not told which words they needed to infer for two reasons. First, I wanted to observe whether or not learners did in fact identify the nonsense words as previously unknown or new. Second, I did not want to encourage the processing of only certain TWs, knowing that participants would be asked to repeat the process for the second story. If they had not identified the TWs during reading aloud they were later asked about how they determined their meanings, along with other words that were also not identified as unfamiliar. After participants completed the think-aloud, they were then called back to the computer to read the second, and last story. After reading the second story they repeated the same two post-reading tasks as for the first story; the adapted VKS, followed by the retrospective think-aloud.

## **Results**

The data from conditions 1 and 2 were collapsed, and from conditions 3 and 4 after determining that there were no differences in performance due to the sequence of presentation of the texts and their versions. Thus, 2 groups were formed: Group 1, who received the familiar

version of the Grocery Store story and the unfamiliar version of the Registering for Classes story, and Group 2, who received the unfamiliar version of the Grocery Shopping story and the familiar version of the Registering for Classes story. The descriptive statistics for the covariate of passage sight vocabulary revealed that participants knew on average just under half of the non-target words that were tested (see Table 2).

**Table 2**  
**Raw Means, Standard Deviations and Range of L2 Passage Sight Vocabulary by Familiarity**

Familiarity	<u>M</u>	<u>SD</u>	<u>min</u>	<u>max</u>
Familiar Versions				
Total <sup>a</sup>	46	.13	17	66
Grocery Shopping <sup>b</sup>	44	.14	17	60
Registering for Classes <sup>c</sup>	48	.12	25	66
Unfamiliar Versions				
Total <sup>d</sup>	47	.12	20	65
Grocery Shopping <sup>e</sup>	52	.11	35	65
Registering for Classes <sup>f</sup>	43	.12	20	59

Note. L2 passage sight vocabulary scores reflect percentage correct. Total = Collapse of both stories corresponding to each version. Familiar Versions = "Grocery Shopping" for Group 1 and "Registering for Classes" for Group 2. Unfamiliar Versions = "Registering for Classes" for Group 1 and "Grocery Shopping" for Group 2.

<sup>a</sup> $\underline{N} = 23$ . <sup>b</sup> $\underline{n} = 12$ . <sup>c</sup> $\underline{n} = 11$ . <sup>d</sup> $\underline{N} = 23$ . <sup>e</sup> $\underline{n} = 11$ . <sup>f</sup> $\underline{n} = 12$ .

The amount of passage sight vocabulary known by the participants was similar for the familiar and unfamiliar versions of the passages. This was later confirmed on an analysis of variance (ANOVA), which indicated no differences due to cultural familiarity. However, it appeared as if there might be differences in passage sight vocabulary knowledge across both groups. The overall scores for group 2 indicated that they knew slightly more of the non-target passage vocabulary than group 1. The ANOVA revealed that these differences were approaching significance, ( $F(1, 42) = 2.96, p = .09$ ). The group by cultural familiarity interaction was not significant.

Upon considering the descriptive statistics for the average scores on the adapted vocabulary knowledge scale there emerged a pattern (see Table 3).

**Table 3**  
**Raw Means and Standard Deviations of Vocabulary Gain per Item by Story and Familiarity**

	Familiar		Unfamiliar		Total <sup>a</sup>	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Grocery Shopping						
<u>dacet</u> as ( <u>magazines</u> )	2.33 <sup>b</sup>	.49	2.09 <sup>d</sup>	.30	2.22	.42
<u>resmo</u> ( <u>cart</u> )	2.17 <sup>b</sup>	.72	1.91 <sup>d</sup>	.30	2.04	.56
<u>amandió</u> ( <u>chose</u> )	2.00 <sup>b</sup>	.60	2.00 <sup>d</sup>	.00	2.00	.43
<u>paligó</u> ( <u>compared</u> )	1.92 <sup>b</sup>	.51	2.00 <sup>d</sup>	.45	1.96	.47
<u>vastró</u> ( <u>paid</u> )	1.67 <sup>b</sup>	.49	2.00 <sup>d</sup>	.00	1.83	.39
Registering for Classes						
<u>languera</u> ( <u>advisor</u> )	2.55 <sup>c</sup>	.52	2.75 <sup>e</sup>	.45	2.65	.49
<u>parga</u> ( <u>timetable</u> )	2.27 <sup>c</sup>	.47	1.92 <sup>e</sup>	.51	2.09	.51
<u>chácora</u> ( <u>schedule</u> )	2.36 <sup>c</sup>	.50	1.75 <sup>e</sup>	.62	2.04	.64
<u>sarpa</u> ( <u>copy</u> )	2.18 <sup>c</sup>	.40	1.75 <sup>e</sup>	.62	1.96	.56
<u>taletos</u> ( <u>numbers</u> )	2.00 <sup>c</sup>	.45	1.92 <sup>e</sup>	.51	1.96	.47

Note. Total = Collapse of both stories corresponding to each version. Familiar Versions = "Grocery Shopping" for Group 1 and "Registering for Classes" for Group 2. Unfamiliar Versions = "Registering for Classes" for Group 1 and "Grocery Shopping" for Group 2.

<sup>a</sup>N = 23. <sup>b</sup>n = 12. <sup>c</sup>n = 11. <sup>d</sup>n = 11. <sup>e</sup>n = 12.

It appeared as if the average gain score for the TW languera – advisor of the Registering for Classes passages was greater than of the remaining 4 TWs from the passages depicting that scenario. This was supported by results from the retrospective think-aloud task, during which most of the participants arrived at the correct meaning of the nonsense word on the basis of its shape alone. The morphological ending denoted profession or occupation, and the root indicated something about languages. A mixed model analysis of covariance (ANCOVA) was conducted to determine if the differences were significant. The model included 3 fixed effects, namely Story (Registering or Grocery), Version (Familiar or Unfamiliar), and Word (10 TWs). The factor of Word was nested within Story, as well as within the interaction of Story and Version. The covariate of passage sight vocabulary was also entered for each story. The results revealed significant differences between the amount of vocabulary gained at the word level ( $F(8, 168) = 7.60, p < .001$ ). A series of LSD post hoc tests revealed significant differences between the TW languera – advisor and the remaining 4 TWs in the Registering for Classes stories, as follows: (taletos – numbers,  $t(168) = -5.97, p < .001$ ; parga – timetable,  $t(168) = -4.79, p < .001$ ; sarpa – copy,  $t(168) = -5.90, p < .001$ ; chácora – schedule,  $t(168) = -5.12, p < .001$ ). On the other hand, for the Grocery Shopping story there were no such consistent differences between gains for the individual TWs. There was only one significant difference detected, between the TW paligó – compared and the TW dacetas – magazines ( $t(168) = -2.20, p < .05$ ). On the basis of the results

from the think-aloud task, and the statistical analyses conducted at the TW level, I decided to eliminate the TW languera from the analyses, since this particular TW was not equivalent to the rest in the sense that it contained more clues to meaning than the others, therefore rendering it impossible to associate any gains with the use of context, or cultural background knowledge.

Table 4 illustrates the descriptive statistics for vocabulary gain by Familiarity and Story.

**Table 4**  
**Raw Means, Standard Deviations and Range of Vocabulary Gain by Story and Familiarity**

Familiarity	<u>M</u>	<u>SD</u>	<u>min</u>	<u>max</u>
Familiar Versions				
Total <sup>a</sup>	2.08	.34	1.20	2.80
Grocery Shopping <sup>b</sup>	2.02	.43	1.20	2.80
Registering for Classes <sup>c</sup>	2.16	.20	2.00	2.50
Unfamiliar Versions				
Total <sup>d</sup>	1.92	.35	1.25	3.00
Grocery Shopping <sup>e</sup>	1.98	.14	1.60	2.20
Registering for Classes <sup>f</sup>	1.85	.47	1.25	3.00

Note. Possible range of vocabulary gain per item = 1- 5. Total = Collapse of both stories corresponding to each version. Familiar Versions = "Grocery Shopping" for Group 1 and "Registering for Classes" for Group 2. Unfamiliar Versions = "Registering for Classes" for Group 1 and "Grocery Shopping" for Group 2.

<sup>a</sup> N = 23. Passages combined contained 9 nonsense TWs. <sup>b</sup> n = 12. Passage contained 5 nonsense TWs. <sup>c</sup> n = 11. Passage contained 4 nonsense TWs. <sup>d</sup> N = 23. Passages combined contained 9 nonsense TWs. <sup>e</sup> n = 11. Passage contained 5 nonsense TWs. <sup>f</sup> n = 12. Passage contained 4 nonsense TWs.

Overall, gain levels are modest, indicating that on average participants only recognized the TWs as having appeared in the passages they read. The overall, or total, average scores are higher for the familiar versions of the two scenarios in comparison to the unfamiliar versions of the same scenarios. Likewise, for each scenario the vocabulary gain scores are higher when participants read the familiar versions in comparison to the unfamiliar versions. Thus, scores are consistently higher when participants read the familiar versions of the scenarios. When comparing gain associated with each scenario there is no discernable pattern. When the scenarios were presented in the familiar versions, scores are slightly higher for the Registering for Classes story. However, when the scenarios were presented in the unfamiliar versions scores are slightly higher for the Grocery Shopping scenario.

Table 5 presents the Pearson correlations between the scores on the L2 passage sight vocabulary variable and the scores on the adapted Vocabulary Knowledge Scale measure of vocabulary gain.

**Table 5**  
**Correlations between L2 Passage Sight Vocabulary and Vocabulary Gain**

Familiarity	Gain
Familiar Versions	
Total <sup>a</sup>	.51*
Grocery Shopping <sup>b</sup>	.73**
Registering for Classes <sup>c</sup>	-.03
Unfamiliar Versions	
Total <sup>d</sup>	.19
Grocery Shopping <sup>e</sup>	.12
Registering for Classes <sup>f</sup>	.16

Note. Total = Collapse of both stories corresponding to each version. Familiar Versions = "Grocery Shopping" for Group 1, and "Registering for Classes" for Group 2. Unfamiliar Versions = "Registering for Classes" for Group 1 and "Grocery Shopping" for Group 2. <sup>a</sup> $\underline{N} = 23$ . Passages combined contained 9 TWs and 9 TW sentences. <sup>b</sup> $\underline{n} = 12$ . Passage contained 5 TWs and 5 TW sentences. <sup>c</sup> $\underline{n} = 11$ . Passage contained 4 TWs and 4 TW sentences. <sup>d</sup> $\underline{N} = 23$ . Passages combined contained 9 TWs and 9 TW sentences. <sup>e</sup> $\underline{n} = 11$ . Passage contained 5 TWs and 5 TW sentences. <sup>f</sup> $\underline{n} = 12$ .



Overall, L2 passage sight vocabulary was an inconsistent predictor of subsequent vocabulary gains, as measured by the adapted version of the VKS. Whereas the overall correlation for the familiar versions of the scenarios is moderate, positive, and significant, the overall correlation for the unfamiliar versions of the scenarios was weak, yet positive. Within the familiar versions, there were also inconsistent patterns. For the Grocery Shopping story the high positive significant correlation revealed that as passage sight vocabulary increased, so did gains. The magnitude of this correlation is higher in comparison to all other correlations. However, for the Registering for Classes scenario there appears to be no correlation between passage sight vocabulary and vocabulary gain. The correlations for the unfamiliar versions of the scenarios illustrate more consistency. For both scenarios the correlations were weak, yet positive. Opposite patterns were also evident between the correlations by scenario and familiarity. On the one hand, the familiar version of the Grocery Shopping scenario is positive, strong, and significant, while the unfamiliar version of this scenario is positive, yet weak. On the other hand, the Registering for Classes scenario yielded weak (unfamiliar version) to no correlation (familiar version). The correlations were compared using the Fisher's  $r$ -to- $z$  transformation to assess the significance of the difference between two correlation coefficients. The comparisons revealed no significant differences between the correlations. In sum, the relationships between passage sight vocabulary knowledge and subsequent gains were notably inconsistent, and in general very weak.

In order to determine the impact of the variables on immediate vocabulary gain a one-between (group) and one-within (familiarity) analysis of covariance (ANCOVA) was carried out with the passage sight vocabulary scores for each separate story entered as a covariate. Group and familiarity served as the categorical independent variables while passage sight vocabulary served as the covariate, or continuous independent variable. The dependent variable represented the average score (from 1-5) obtained on the vocabulary gain measure (VKS). The impact of the independent variables and the covariate, and all two-way interactions were tested with omnibus F tests, observing Type III sum of squares. An alpha level of .05 was used for all statistical tests. The ANCOVA revealed a significant main effect for cultural familiarity on vocabulary gain ( $F(1,20) = 13.76, p < .01$ ). More TWs were remembered from the culturally familiar versions of the passage scenarios in comparison to the culturally unfamiliar versions of the same passage scenarios. There were no significant effects obtained for the variable of group, the covariate of L2 passage sight vocabulary, or the group by familiarity interaction.

## **Discussion**

The present study set out to investigate the impact of cultural familiarity and L2 passage sight vocabulary on L2 incidental vocabulary gain through reading; variables that have received inadequate attention within the existing body of empirical studies. The hypothesis that vocabulary gains would be superior after reading narrative passages depicting culturally familiar versions of everyday scenarios as opposed to culturally unfamiliar versions of the same scenarios, is consistently supported. Learners at the high-intermediate level of proficiency demonstrated greater vocabulary gain scores after reading about scenarios with which they were familiar, based upon previous experience and background knowledge. That is, after reading the culturally familiar versions of the stories learners demonstrated better memory for having seen the target nonsense words than after reading culturally unfamiliar versions of the scenarios. This finding provides additional support for schema-theoretic and knowledge-based views of learning and memory, wherein the possession of appropriate background knowledge is assumed to facilitate attentional allocation, the construction of mental representations, and in the present

study, the forging of form-meaning connections, to varying degrees, between the new words and the contexts within which they were encountered. At least in the short run, it is assumed that greater familiarity with the nature of the scenarios provided a cognitive foothold upon which to construct and integrate some information about new words, even if that information was largely episodic in nature (i.e., memory for having encountered the linguistic item in a particular context). These findings provide additional evidence in support of the notion that background knowledge affects L2 incidental vocabulary gains through reading. They corroborate and extend the findings obtained by Pulido (2000, 2002, 2003), which illustrated a robust impact of topic familiarity, rather than cultural familiarity, on short-term incidental gains. In addition, they extend the results obtained from research conducted on L2 lexical inferencing (e.g., Chern, 1993; De Bot et al., 1997; Lee & Wolf, 1997; Parry, 1997; Rott, 2000), which has served as a springboard for formulating hypotheses about the effects of background knowledge on incidental vocabulary acquisition. The present study provides yet another perspective and additional information concerning the role of background knowledge in the process of incidental vocabulary acquisition. This is accomplished via an experimental design that subsequently assessed participants' memory for new form-meaning connections that may have been established when reading about scenarios that differed in their degree of cultural familiarity.

Although gain scores were rather low, the responses on the adapted VKS for the TWs that were encountered within familiar versions of the scenarios revealed generally more appropriate use of background knowledge in constructing meaning than did the unfamiliar versions. It is assumed that background knowledge was relied upon since the story contexts contained no definitional clues about the meaning of the TWs. However, when participants encountered the TWs within the unfamiliar versions their responses illustrated some application of knowledge inconsistent with that implied by the passage. That is, it appears as if they may have transferred and applied their native cultural experiences and inappropriate background knowledge to the reading situation, corroborating findings from L1 and L2 reading research, as well as L2 lexical inferencing studies, which have reported the negative effects of inappropriate application of background knowledge when reading. For example, for the unfamiliar version of the Grocery Shopping scenario several participants indicated that resmo- cart meant recipe in the context of the foreign student getting his cart or basket and going to the grocery store, a situation that is typically played out in a foreign culture, but not in the native culture of the participants. For the TW amandió – chose a few responses included greeted. In this story context the foreign student went to the fruit stand, where the vendor selected which pieces of fruit to sell to the student. This situation, although typical in some foreign cultures, is unusual for the native culture of the participants. It appears as if the presence of the fruit vendor implied some type of interaction between the two, in this case opportunity to give a greeting, which was later recalled on the VKS. For the unfamiliar version of the Registering for Classes passage there were fewer intrusions than for the Grocery scenario. One such intrusion was for the TW parga – timetable. Several of the responses included the notion of payment. This is not surprising since the context depicted the foreign student going to the Foreign Languages and Literatures department to buy something. In sum, the situation model that the learners constructed undoubtedly incorporated information from their long-term memory based upon their knowledge and experience (Kintsch, 1998). The personal interpretations that were constructed of the unfamiliar versions of the texts were incongruent with the context that was intended, which appears to have negatively influenced ability to construct accurate form –meaning connections for new words encountered in these specific contexts.

Finally, the hypothesis that L2 passage sight vocabulary would also have a positive significant impact on incidental vocabulary gain was not consistently confirmed. Although the test of this variable did not reach significance in an analysis of covariance, and therefore did not provide as robust evidence of the impact of L2 passage sight vocabulary as was reported in Pulido (2000, 2002, 2003), there was a high significant positive correlation obtained between scores of passage sight vocabulary and subsequent vocabulary gain for one of the four passages (i.e., the culturally familiar version of the Grocery Shopping scenario). This specific finding extends some of the observations and speculations from lexical inferencing research, namely, that inferencing and the possibility of vocabulary gain is hampered when learners do not know the words in the surrounding context (e.g., Coady et al., 1993; Haynes, 1993; Haynes & Baker, 1993; Lee & Wolf, 1997; Na & Nation, 1985; Rott, 2000; Schouten-van Parreren, 1989). For the participants who read the familiar version of the Grocery Shopping story we may assume that as L2 passage sight vocabulary increased so did ability to decode the text, which would have led to greater success in local propositional and syntactic encoding. Such ease should have helped to free up cognitive resources, resources which are needed to allocate attention to the construction of ideas from context, the access of knowledge stored in long-term memory, and the ability to engage in successful inferencing to resolve the meaning of any unfamiliar words deemed necessary for comprehension. Thus, as additional resources are made available during text processing, the forging of stronger form-meaning connections is made possible, such that target lexical items may later be retrievable, or better recognized, as was the case in the present study ( Craik & Lockhart, 1972; Craik & Tulving, 1975; Ellis, 1994b, 2001; Hulstijn, 2001, 2003; Hulstijn et al., 1996; Laufer & Hulstijn, 2001; Lockhart & Craik, 1990).

Although the passage sight vocabulary measure represented a continuous range of vocabulary knowledge specifically associated with the texts at hand, the low correlations obtained on the remaining passages might have been the result of a greater restriction in range of scores on the VKS and the passage sight vocabulary measure for these passages. The lack of a robust finding for the variable of passage sight vocabulary in the present study, in comparison to the robust findings previously obtained by Pulido (2000, 2002, 2003), may be due to the use of a different measure of vocabulary gain than in the studies by Pulido. Additionally, perhaps other reader-based factors affected performance within each group. It is quite possible that other factors, such as background knowledge or predictability, may have also influenced vocabulary gain outcomes. For example, some participants indicated on the retrospective think-aloud task that the Grocery story was generally more difficult and less predictable than the Registering story. This anecdotal report leaves room for the possibility that predictability might also be a factor related to gains, and in some cases might offset the role of linguistic knowledge in comprehending and inferring meaning of specific vocabulary words during reading. Future studies should carefully consider the role of predictability in lexical inferencing and gains through reading. In conclusion, in the present study there was weak support for the notion that the rich get richer.

### **Pedagogical Implications**

Although the present study set out to determine the nature of the impact of two reader-based factors on incidental vocabulary acquisition through reading, rather than the effectiveness of an instructional intervention per se, a few pedagogical recommendations are in order. First, given the finding that gain scores were greater after participants read passages that depicted culturally familiar scenarios, in comparison to culturally unfamiliar versions of the same

scenarios, it might be beneficial for language practitioners to familiarize learners ahead of time with certain cultural information if it is implied within instructional readings and considered to be unfamiliar to their readers. Second, with respect to the impact of vocabulary knowledge associated with the passages, instructors may wish to continue to encourage awareness of passage sight vocabulary during reading activities in order to promote the construction of richer mental representations during reading. At the same time, language instructors should be aware that there may be other factors that could also be related to performance, such as the predictability of certain words in certain contexts, as well as familiarity with the information implied in the text. Thus, linguistic knowledge alone may not be sufficient to lead to greater levels of vocabulary gain. Last, foreign language instructors may also wish to keep in mind the incremental nature of vocabulary acquisition through reading. That is, with limited exposure to new vocabulary, as was the case in the present study, gains might be limited to mere recognition of having seen new words in particular contexts, but little more.

### **Limitations**

No study is without its limitations. Future research may wish to consider the following in an attempt to improve upon the formulation of models of L2 incidental vocabulary acquisition through reading. First, the generally low levels of gain and weak memory traces that were attained may have resulted from several factors, such as the adapted VKS instrument itself, which may not have been as sensitive in detecting incidental gains from only one exposure to the target word as other measures (e.g., a multiple-choice test of recognition of meaning). Future research may wish to consider other measures that might better tap various levels of knowledge about a new word after only one exposure. Second, the sentence-by-sentence reading situation itself was not naturalistic and may have contributed to weak performance. Future studies may wish to consider the role of cultural familiarity on incidental vocabulary acquisition in more naturalistic reading situations. Third, the group of participants in the present study represented only one level of proficiency (i.e., high- intermediate). Future research should include learners of several proficiency levels to allow for cross-sectional generalizations.

### **Conclusion**

In conclusion, the results from the present study elucidate the nature of the impact of a type of background knowledge, that of cultural familiarity, on L2 incidental vocabulary acquisition through reading. In addition, the study considered the nature of the impact of linguistic proficiency by way of passage sight vocabulary knowledge. An attempt to study the impact of such a combination of cultural familiarity and passage sight vocabulary has been missing from SLA research. In general, there is strong support for the hypothesis that the rich do indeed get richer when considering the impact of cultural familiarity on incidental vocabulary acquisition. Whereas the impact of passage sight vocabulary proved less consistent, perhaps the result of methodological limitations. This leaves room for future investigations into the nature of these complex relationships, and the possibility of compensatory processing in L2 incidental vocabulary acquisition through reading.

### Notes

<sup>1</sup>Faerch, Haastrup, and Phillipson (1984) state that lexical inferencing entails “making informed guesses as to the meaning of a word in the light of all available linguistic cues in combination with the learners' general knowledge of the world, her awareness of the co-text and her relevant linguistic knowledge ”(p. 150).

<sup>2</sup>In this study, when participants' L2 passage sight vocabulary was accounted for (i.e., knowledge of the non-target vocabulary contained within the text) there was a consistent effect of topic familiarity on lexical inferencing. However, when participants' L2 general reading proficiency was accounted for (as measured by the Spanish version of the Adult Basic Learning Examination (ABLE), Karlsen & Gardner, 1990) the effect of topic familiarity was obtained only with learners whose ABLE scores were greater than or equal to 34 out of a total possible 48 (i.e., participants at the intermediate level and beyond of university-level foreign language instruction).

<sup>3</sup>When accounting for participants' L2 general reading proficiency (as measured by the ABLE exam, Spanish version) the effect of topic familiarity on a retention measure to assess recognition of translation equivalents was obtained only for those participants who scored less than 31 out of 48 (i.e., intermediate level and below).

<sup>4</sup>This more generally refers to word recognition, or, according to Miller (1988) as “visual information processing....or converting print into linguistic information” (as cited in Koda, 1996, p. 450).

<sup>5</sup>This involves processes whereby the reader has to “compute the relationships among the successive words, phrases, and sentences, thereby constructing a coherent and meaningful representation of the passage as a whole” Daneman (1996, p. 514). This entails the extraction of basic units of meaning that describe the actions, states, and participants and the relationships amongst them.

<sup>6</sup>This includes processes such as directing the eye from one location to the next, identifying letters, recognizing the visual pattern of a word, converting a visual representation into its corresponding phonological code, and accessing a word's meaning in the mental lexicon. For more detailed descriptions see Daneman (1996), Koda (1996), and Perfetti (1985).

<sup>7</sup>This refers to the size of one's vocabulary as measured by a test containing words representing a particular frequency or proficiency level. In such studies, these words may or may not have appeared within the target passages from which new vocabulary gains occurred. Thus, in contrast to passage sight vocabulary, general vocabulary knowledge is independent of any particular passage.

<sup>8</sup>This refers to the nature of the description of the actions portrayed in the stories, where some actions typically precede others (i.e., in the Grocery story one goes through the supermarket, selects items and finds out how much they cost before paying for them, and in the Registering story one considers the classes to take and consults with the time schedule before registering for them).

<sup>9</sup>The data and results from the retrospective think-aloud task are not included in the present study except for in passing, for example to justify discarding the TW languera – advisor, on the basis of its morphological transparency, which was confirmed in the process of conducting the retrospective think-aloud.

### References

- Adams, S. (1982). Scripts and the recognition of unfamiliar vocabulary: Enhancing second language reading skills. Modern Language Journal, 66, 155-159.
- Alderson, J., & Urquhart, A. (1988). This test is unfair: I'm not an economist. In P. Carrell, J. Devine, & D. Eskey (Eds.), Interactive approaches to second language reading (pp. 168-182). Cambridge: Cambridge University Press.
- Anderson, R., & Freebody, P. (1983). Reading comprehension and the assessment and acquisition of knowledge. Advances in Reading/Language Research, 2, 231-256.
- Barnett, M. (1989). More than meets the eye: Foreign language reading, theory and practice. Englewood Cliffs, NJ: Prentice Hall.
- Barry, S., & Lazarte, A. (1998). Evidence for mental models: How do prior knowledge, syntactic complexity, and reading topic affect inference generation in a recall task for nonnative readers of Spanish? The Modern Language Journal, 82, 176-193.
- Bartlett, F. (1932). Remembering: A study in experimental and social psychology. Cambridge: Cambridge University Press.
- Bensoussan, M. (1992). Learners' spontaneous translations in an L2 reading comprehension task: Vocabulary knowledge and use of schemata. In P. Arnaud & H. Bejoint (Eds.), Vocabulary and applied linguistics (pp. 102-111). London: Macmillan.
- Bensoussan, M., & Laufer, B. (1984). Lexical guessing in context in EFL reading comprehension. The Journal of Research in Reading, 7, 15-32.
- Bernhardt, E. (1991). Reading development in a second language: Theoretical, empirical, and classroom perspectives. Norwood, NJ: Ablex.
- Bower, G., Black, J., & Turner, T. (1979). Scripts in memory for text. Cognitive Psychology, 11, 177-220.
- Carrell, P. (1987). Content and formal schemata in ESL reading. TESOL Quarterly, 21, 461-481.
- Carrell, P., Devine, J., & Eskey, D. (1988). Interactive approaches to second language reading. Cambridge, UK: Cambridge University Press.
- Chen, Q., & Donin, J., (1997). Discourse processing of first and second language biology texts: Effects of language proficiency and domain-specific knowledge. The Modern Language Journal, 81, 209-227.
- Chern, C. (1993). Chinese students' word-solving strategies in reading in English. In T. Huckin, M. Haynes, & J. Coady (Eds.). Second language reading and vocabulary learning (pp. 67-82). Norwood, NJ: Ablex.

Coady, J., Magoto, J., Hubbard, P., Graney, J., & Mokhtari, K. (1993). High frequency vocabulary and reading proficiency in ESL readers. In T. Huckin, M. Haynes, & J. Coady (Eds.), Second language reading and vocabulary learning (pp. 217-228). Norwood, NJ: Ablex.

Craik, F., & Lockhart, R. (1972). Levels of processing: A framework for memory research. Journal of Verbal Learning and Verbal Behaviour, 11, 671-684.

Craik, F., & Tulving, E. (1975). Depth of processing and the retention of words in episodic memory. Journal of Experimental Psychology: General, 104, 268-294.

Daneman, M. (1996). Individual differences in reading skills. In R. Barr, M. Kamil, P. Mosenthal, & P.D. Pearson (Eds.), Handbook of Reading Research: Volume II (pp. 512-538). Mahwah, NJ: Lawrence Erlbaum Associates.

De Bot, K., Paribakht, T., & Wesche, M. (1997). Toward a lexical processing model for the study of second language vocabulary acquisition. Studies in Second Language Acquisition, 19, 309-329.

Diakidoy, I. (1998). The role of reading comprehension in word meaning acquisition during reading. European Journal of Psychology of Education, 13, 131-154.

Ellis, N. C. (1994b). Vocabulary acquisition: The implicit ins and outs of explicit cognitive mediation. In N. Ellis (Ed.), Implicit and explicit learning of languages (pp. 211-282). London: Academic Press.

Ellis, N. C. (2001). Memory for language. In P. Robinson (Ed.), Cognition and second language instruction (pp. 33-68). Cambridge: Cambridge University Press.

Faerch, C., Haastrup, K., & Phillipson, R. (1984). Learner language and language learning. Copenhagen: Clevedon Multilingual Matters.

Graesser, A., Gordon, S., & Sawyer, J. (1979). Memory for typical and atypical actions in scripted activities: Test of a script pointer + tag hypothesis. Journal of Verbal Learning and Verbal Behavior, 18, 319-332.

Graesser, A., Singer, M., & Trabasso, T. (1994). Constructing inferences during narrative text comprehension. Psychological Review, 101, 371-395.

Haastrup, K. (1989). The learner as word processor. AILA Review, 6, 34-46.

Haynes, M. (1993). Patterns and perils of guessing in second language reading. In T. Huckin, M. Haynes, & J. Coady (Eds.), Second language reading and vocabulary learning (pp. 46-64). Norwood, NJ: Ablex.

- Haynes, M., & Baker, I. (1993). American and Chinese readers learning from lexical familiarizations in English text. In T. Huckin, M. Haynes, & J. Coady (Eds.), Second language reading and vocabulary learning (pp. 130-150). Norwood, NJ: Ablex.
- Horst, M., Cobb, T., & Meara, P. (1998). Beyond a Clockwork Orange: Acquiring second language vocabulary through reading. Reading in a Foreign Language, 11, 207-223.
- Huckin, T., & Bloch, J. (1993). Strategies for inferring word meaning in context: A cognitive model. In T. Huckin, M. Haynes, & J. Coady (Eds.), Second language reading and vocabulary learning (pp. 153-176). Norwood, NJ: Ablex.
- Hudson, T. (1982). The effects of induced schemata on the 'short circuit' in L2 reading: Non-decoding factors in L2 reading performance. Language Learning, 32, 3-31.
- Hulstijn, J. (1992). Retention of inferred and given word meanings: Experiments in incidental vocabulary learning. In P. Arnaud & H. Bejoint (Eds.), Vocabulary and applied linguistics (pp. 113-125). London: Macmillan.
- Hulstijn, J. (1993). When do foreign language readers look up the meaning of unfamiliar words? The influence of task and learner variables. The Modern Language Journal, 77, 139-147.
- Hulstijn, J. (2001). Intentional and incidental second language vocabulary learning: A reappraisal of elaboration, rehearsal and automaticity. In P. Robinson (Ed.), Cognition and second language instruction (pp. 258-286). Cambridge: Cambridge University Press.
- Hulstijn, J. (2003). Incidental and intentional learning. In C. Doughty & M.H. Long (Eds.), Handbook of Second Language Acquisition (pp. 349-381). Oxford, UK: Blackwell.
- Hulstijn, J., Hollander, M., & Greidanus, T. (1996). Incidental vocabulary learning by advanced foreign language students: The influence of marginal glosses, dictionary use, and reoccurrence of unknown words. The Modern Language Journal, 80, 327-339.
- Jacobs, G., Dufon, P., & Fong, C. (1994). L1 and L2 vocabulary glosses in L2 reading passages: their effectiveness for increasing comprehension and vocabulary knowledge. Journal of Research in Reading, 17, 19-28.
- Johnson, P. (1981). Effects on reading comprehension of language complexity and cultural background. TESOL Quarterly, 15, 169-181.
- Just, M., & Carpenter, P. (1992). A capacity theory of comprehension: Individual differences in working memory. Psychological Review, 99, 122-149.
- Karlsen, B., & Gardner, F. (1990). Adult Basic Learning Examination. San Antonio, TX: The Psychological Corporation.



- Kintsch, W. (1998). Comprehension: A paradigm for cognition. Cambridge: Cambridge University Press.
- Koda, K. (1989). The effects of transferred vocabulary knowledge on the development of L2 reading proficiency. Foreign Language Annals, 22, 529-540.
- Koda, K. (1996). L2 word recognition research: A critical review. Modern Language Journal, 80, 450- 460.
- Krashen, S. (1989). We acquire vocabulary and spelling by reading: Additional evidence for the input hypothesis. The Modern Language Journal, 73, 440-464.
- Krashen, S. (1993a). The power of reading. Englewood, CO: Libraries Unlimited, Inc.
- Laufer, B. (1992a). How much lexis is necessary for reading comprehension? In P. Arnaud & H. Bejoint (Eds.), Vocabulary and applied linguistics (pp. 126-132). London: Macmillan.
- Laufer, B. (1997a). The lexical plight in second language reading; Words you don't know, words you think you know, and words you can't guess. In J. Coady & T. Huckin (Eds.), Second language vocabulary acquisition: A rationale for pedagogy (pp. 20-33). Cambridge: Cambridge University Press.
- Laufer, B., & Hulstijn, J. (2001). Incidental vocabulary acquisition in a second language: The construct of task-induced involvement. Applied Linguistics, 22, 1-26.
- Laufer, B., & Sim, D. (1985a). Measuring and explaining the threshold needed for English for Academic Purposes Tests. Foreign Language Annals, 18, 405-413.
- Laufer, B., & Sim, D. (1985b). Taking the easy way out: Nonuse and misuse of contextual clues in EFL reading comprehension. English Teaching Forum, 23, 7-10.
- Lee, J. F. (1990b). A review of empirical comparisons of non-native reading behaviors across stages of language development. In H. Burmeister & P.L. Rounds (Eds.), Variability in second language acquisition (pp. 453-72). Eugene, OR: University of Oregon Press.
- Lee, J. F. (1997). Non-native reading research and theory. In K. Bardovi-Harlig & B. Hartford (Eds.), Beyond methods: Components of second language teacher education (pp. 152-171). New York: McGraw Hill.
- Lee, J. F., & Wolf, D. (1997). A quantitative and qualitative analysis of the word-meaning inferencing strategies of L1 and L2 readers. Spanish Applied Linguistics, 1, 24-64.
- Lockhart, R., & Craik, F. (1990). Levels of processing: A retrospective commentary on a framework of memory research. Canadian Journal of Psychology, 44, 87-112.

- Mandler, J. (1984). Stories, scripts, and scenes: Aspects of schema theory. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Miller, G. (1988). The challenge of universal literacy. Science, 241, 1293-1299.
- Na, L., & Nation, I. (1985). Factors affecting guessing vocabulary in context. RELC Journal, 16, 33-42.
- Nagy, W. (1997). On the role of context in first-and second-language vocabulary learning. In N. Schmitt & M. McCarthy (Eds.), Vocabulary: Description, acquisition, and pedagogy (pp. 64-83). Cambridge: Cambridge University Press.
- Nagy, W. , Anderson, R., & Herman, P. (1987). Learning word meanings from context during normal reading. American Educational Research Journal, 24, 237-270.
- Nassaji, H. (2002). Schema theory and knowledge-based processes in second language reading comprehension: A need for alternative perspectives. Language Learning, 52, 439-481.
- Paribakht, T., & Wesche, M. (1993). The relationship between reading comprehension and second language development in a comprehension-based ESL program. TESL Canada Journal, 2, 9-29.
- Paribakht, T., & Wesche, M. (1997). Vocabulary enhancement activities and reading for meaning in second language vocabulary acquisition. In J. Coady & T. Huckin (Eds.), Second language vocabulary acquisition: A rationale for pedagogy (pp. 174-200). Cambridge: Cambridge University Press.
- Paribakht, T., & Wesche, M. (1999). Reading and "incidental" L2 vocabulary acquisition. An introspective study of lexical inferencing. Studies in Second Language Acquisition, 21, 195-224.
- Parry, K. (1993). Too many words: Learning the vocabulary of an academic subject. In T. Huckin, M. Haynes, & J. Coady, (Eds.), Second language reading and vocabulary learning (pp. 109-129). Norwood, NJ: Ablex.
- Parry, K. (1997). Vocabulary and comprehension: Two portraits. In J. Coady & T. Huckin (Eds.), Second language vocabulary acquisition: A rationale for pedagogy (pp. 55-68). Cambridge: Cambridge University Press.
- Perfetti, C. (1985). Reading ability. New York: Oxford University Press.
- Pulido, D. (2000). The impact of topic familiarity, L2 reading proficiency, and L2 passage sight vocabulary on incidental vocabulary gain through reading for adult learners of Spanish as a foreign language. Unpublished doctoral dissertation, University of Illinois at Urbana-Champaign.
- Pulido, D. (2002, October). Varying involvement load in inferencing and retention of L2

vocabulary. Paper presented at the Second Language Research Forum (SLRF), Toronto, Ontario, Canada.

Pulido, D. (2003). Modeling the role of second language proficiency and topic familiarity in second language incidental vocabulary acquisition through reading. Language Learning, *53*, 233-284.

Pulido, D. (in press). The relationship between text comprehension and second language incidental vocabulary acquisition: A matter of topic familiarity? Language Learning.

Qian, D. (2002). Investigating the relationship between vocabulary knowledge and academic reading performance: An assessment perspective. Language Learning, *52*, 513-536.

Robinson, P. (1995). Review article: Attention, memory, and the “noticing” hypothesis. Language Learning, *45*, 283-331.

Rott, S. (1997). The effect of exposure frequency and reading comprehension on incidental vocabulary acquisition and retention through reading for learners of German as a foreign language. Unpublished Doctoral Dissertation, University of Illinois at Urbana-Champaign.

Rott, S. (2000). Relationships between the process of reading, word inferencing, and incidental word acquisition. In J.F. Lee & A. Valdman (Eds.), Form and Meaning: Multiple Perspectives (pp. 255-282). Boston, MA: Heinle & Heinle.

Rumelhart, D. (1977). Toward an interactive model of reading. Attention and performance, *6*, 573-603.

Rumelhart, D. (1980). Schemata: The building blocks of cognition. In R. Spiro, B. Bruce, & W. Brewer (Eds.), Theoretical issues in reading comprehension (pp. 33-58). Hillsdale, NJ: Lawrence Erlbaum Associates.

Schank, R., & Abelson, R. (1977). Scripts, plans, goals, and understanding. Hillsdale, NJ: Lawrence Erlbaum Associates.

Schouten-van Parreren, C. (1989). Vocabulary learning through reading: Which conditions should be met when presenting words in texts? AILA Review, *6*, 75-85.

Segalowitz, N. (1986). Second language reading. In J. Vaid (Ed.), Language processing in bilinguals: Psycholinguistic and neuropsychological perspectives (pp. 3-19). Hillsdale, NJ: Erlbaum.

Stahl, S. & Jacobson, M. (1986). Vocabulary difficulty, prior knowledge, and text comprehension. Journal of Reading Behavior, *18*, 309-324.

Stahl, S., Jacobson, M., Davis, C., & Davis, R. (1989). Prior knowledge and difficult vocabulary in the comprehension of unfamiliar text. Reading Research Quarterly, *24*, 27-43.

Stanovich, K. (1980). Toward an interactive-compensatory model of individual differences in the development of reading fluency. Reading Research Quarterly, 16, 32-71.

Stanovich, K. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. Reading Research Quarterly, 21, 360-400.

Stanovich, K. (2000). Progress in understanding reading: Scientific foundations and new frontiers. New York, NY: The Guilford Press.

Steffensen, M., Joag-Dev, C., & Anderson, R. (1979). A cross-cultural perspective on reading comprehension. Reading Research Quarterly, 15, 10-29.

Sternberg, R. (1987). Most vocabulary is learned from context. In M. McKeown & M. Curtis (Eds.), The nature of vocabulary acquisition (pp. 89-105). Hillsdale, NJ: Lawrence Erlbaum Associates.

Swaffar, J., Arens, K., & Byrnes, H. (1991). Reading for meaning: An integrated approach to language learning. Englewood Cliffs, NJ: Prentice Hall.

Tuero, S. (1996). The role of unknown vocabulary and prior knowledge in the comprehension of familiar and unfamiliar text when reading in a foreign language. Unpublished Doctoral Dissertation, Michigan State University.

Ulijn, J., & Strother, J. (1990). The effect of syntactic simplification on reading EST texts as L1 and L2. Journal of Research in Reading, 13, 38-54.

Zhang, X. (1993). The effect of cross-cultural content schemata on ESL reading comprehension of beginners. Unpublished Master's Thesis, University of Victoria.

<p>Diana Pulido, Ph.D., is Assistant Professor of Spanish and Pedagogy at Washington State University. Her research interests and publications focus on SLA, text processing, and individual differences in reading and incidental vocabulary acquisition. She coordinates the Spanish basic language program and offers graduate and undergraduate courses on Foreign Language Teaching Methodology and CALL. Address: Dept. of Foreign Languages and Cultures, Washington State University, Thompson Hall 110, PO Box 642610, Pullman, WA, 99164-2610. E-mail contact: dpulido@wsu.edu.</p>
---

**Appendix A**  
**Passages**

**Culturally Familiar Versions**

Las aventuras de John en el supermercado

- 1 Era sábado y John, instructor en la Universidad de Illinois, buscaba los cupones para ir al supermercado.
- 2 Preparaba una cena italiana y aún tenía que comprar los ingredientes.
- 3 Así que entró en el supermercado y cogió un *resmo* [carro] grande y limpio.
- 4 Observó a la gente.
- 5 Primero, fue a la ventanilla de Servicio para comprar sellos.
- 6 Le pidió al cajero un paquete.
- 7 John preguntó cuánto era y le *vastró* [pagó] al cajero antes de seguir por el supermercado.
- 8 Luego, se dio una vuelta por los pasillos del supermercado.
- 9 Siguió hacia la sección de frutas y verduras para comprar tomates maduros para la salsa de tomate.
- 10 Allí, John miró lo que tenía buena pinta y *amandió* [escogió] una docena de tomates.
- 11 Luego, John fue al pasillo de los alimentos enlatados.
- 12 Buscaba un paquete de espaguetis y latas de sopa de pollo.
- 13 Encontró la sopa pero había tantas marcas de espaguetis que no sabía cuál de ellas comprar.
- 14 Entonces, John *paligó* [comparó] los precios y la cualidad de las marcas.
- 15 John siguió por el supermercado.
- 16 Después de tanto comprar aún no tenía las bebidas.
- 17 Entonces, fue al pasillo de alcohol para comprar unas cervezas.
- 18 Ahora, mientras estaba allí buscaba varias marcas.
- 19 Lo tenía todo, así que fue a la caja del supermercado.
- 20 Había tres personas delante de él en la cola, entonces John comenzó a leer las *dacetas* [revistas].
- 21 Por fin llegó su turno y, después, John salió del supermercado.

Las aventuras de Mary en el día de elegir cursos

- 1 Era marzo y Mary, estudiante en la Universidad de Illinois, pensaba en los planes del próximo semestre.
- 2 Ahora tenía que pensar en qué asignaturas iba a elegir para el próximo semestre.
- 3 Pero no sabía qué clases se ofrecían.
- 4 Así que Mary fue a la biblioteca de la universidad para buscar la *parga* [guía] que generalmente se encuentra por allí.
- 5 Comenzó a leer las descripciones de varias clases.
- 6 Quería estudiar asignaturas interesantes.
- 7 Más tarde, fue a la tercera planta de la Facultad de Lenguas Extranjeras porque a las cuatro tenía una cita con su *languera* [consejera] para hablar sobre los cursos.
- 8 Las dos llegaron a las cuatro en punto.
- 9 Mary tenía muchas preguntas importantes.
- 10 Así que pasaron un rato hablando, contestando preguntas y apuntando ideas.
- 11 Entonces, las dos sacaron un papel e hicieron la *chácora* [horario] para el próximo semestre.
- 12 Luego, al día siguiente, Mary fue al laboratorio de computadoras.
- 13 Había un montón de gente.
- 14 Después de un rato, llegó su turno.
- 15 Entonces, en la computadora inició la sesión en el UI Direct, y en los espacios escribió todos los *taletos* [números] de los cursos.
- 16 La computadora le informó que no podía elegir una clase porque había un conflicto entre las secciones.
- 17 Entonces, Mary buscó otras secciones de historia para cumplir el requisito.
- 18 Eligió otras clases más y, después, repasó todos los detalles de su matrícula del próximo semestre.
- 19 Entonces, ella y se mandó a sí misma un mensaje electrónico y completó el proceso en la computadora
- 20 Después, Mary sacó de la impresora la *sarpa* [copia] de su matrícula.
- 21 Por fin, Mary consiguió sus clases.

Note. Underlined words illustrate the words and contexts which varied across both the familiar and unfamiliar versions of each story. The nonsense words appear in italics. The original words appear in brackets after each nonsense word.

### Culturally Unfamiliar Versions

#### Las aventuras de Juan en el mercado

- 1 Era sábado y Juan, instructor en la Universidad de Paraguay, escribía la lista para ir al mercado.
- 2 Preparaba una cena italiana y aún tenía que comprar los ingredientes.
- 3 Así que cogió su *resmo* [carrito] favorito de casa y entró en el mercado.
- 4 Saludó al tendero.
- 5 Primero, fue a la carnicería para comprar carne.
- 6 Le pidió al carnicero un kilo.
- 7 Juan preguntó cuánto era y le *vastró* [pagó] al carnicero antes de continuar por el mercado.
- 8 Luego, se dio una vuelta por los puestos del mercado.
- 9 Siguió hacia el puesto de frutas y verduras para comprar tomates maduros para la salsa de tomate.
- 10 Allí, el frutero le dijo lo que tenía buena pinta y le *amandió* [escogió] una docena.
- 11 Luego, Juan fue al puesto de los alimentos enlatados.
- 12 Buscaba un paquete de espaguetis y latas de sopa de pollo.
- 13 Encontró la sopa pero había tantas marcas de espaguetis que no sabía cuál de ellas comprar.
- 14 Entonces, el tendero le paligó [comparó] los precios y la cualidad.
- 15 Juan siguió por el mercado.
- 16 Después de tanto caminar, ahora tenía sed.
- 17 Entonces, entró en el bar del mercado para pedir una bebida.
- 18 Ahora, mientras tomaba su vino fumaba un cigarillo.
- 19 Lo tenía todo así que fue a la caja del bar.
- 20 Había tres patrones delante de él en la barra, entonces Juan comenzó a leer las *dacetás* [revistas].
- 21 Por fin llegó su turno y, después, Juan salió del mercado.

Las aventuras de María en el día de elegir cursos

- 1 Era junio y María, estudiante en la Universidad de Paraguay, pensaba en los planes del próximo año.
- 2 Ahora tenía que pensar en qué asignaturas iba a elegir para el próximo año.
- 3 Pero no sabía qué clases se ofrecían.
- 4 Así que María fue a la Facultad de Lenguas y Literaturas para comprar la *parga* [guía] que generalmente se vende por allí.
- 5 Comenzó a leer las bibliografías de varias clases.
- 6 Quería estudiar asignaturas interesantes.
- 7 Luego, fue a la cafetería de la Facultad de Lenguas y Literaturas porque a las cuatro tenía una cita con su *languera* [consejera] para hablar de los cursos.
- 8 Las dos llegaron a las cuatro en punto.
- 9 María tenía muchas preguntas importantes.
- 10 Así que pasaron un rato hablando, tomando cerveza y fumando cigarillos.
- 11 Entonces, las dos sacaron los cuadernos e hicieron la *chácora* [horario] para el próximo año.
- 12 Luego, al día siguiente, María fue a la oficina central.
- 13 Había un montón de gente.
- 14 Después de un rato, llegó su turno.
- 15 Entonces, en la ventanilla le dijo su nombre a la secretaria y en el formulario indicó todos los *taletos* [números] de los cursos.
- 16 La secretaria le informó que no podía elegir una clase porque había un exceso de estudiantes.
- 17 Luego, María fue al Banco de Paraguay para pagar la matrícula.
- 18 Después, volvió a la oficina central y le entregó el recibo del pago a la secretaria.
- 19 Entonces, la secretaria estampilló el recibo del pago y le dio a María un documento.
- 20 Más tarde, María recibió de ella la *sarpa* [copia] de su matrícula.
- 21 Por fin, María consiguió sus clases.

Note. Underlined words illustrate the words and contexts which varied across both the familiar and unfamiliar versions of each story. The nonsense words appear in italics. The original words appear in brackets after each nonsense word.



**Appendix B**  
**Target Words**

	Grocery Shopping	Registering for Classes
Nouns	<u>dacet</u> as (magazines) <u>resmo</u> (grocery cart)	<u>languera</u> (advisor) <u>parga</u> (timetable) <u>chácora</u> (schedule) <u>sarpa</u> (copy) <u>taletos</u> (numbers)
Verbs	<u>vastró</u> (paid) <u>amandió</u> (chose) <u>paligó</u> (compared)	

**Appendix C**  
**Vocabulary Knowledge Scale**

---

Instructions: Please read each item on this activity very carefully. If you are not sure of the at each of the levels (labeled I, II, III, IV, and V) mean, please ask your researcher for help. Then indicate your knowledge about the FIVE words below.

resmo

- I. I have never seen this word. \_\_\_\_\_
- II. I saw this word in the passage, but I don't know what it means. \_\_\_\_\_
- III. I saw this word in the passage, and I think it means \_\_\_\_\_ (provide an English translation.)
- IV. I know this word. It means \_\_\_\_\_ (provide an English translation.)
- V. I can use this word in a sentence (if you answer this item , you MUST also answer item IV)
- \_\_\_\_\_

---

Note. The VKS used in the present study is adapted from Paribakht & Wesche (1993, p. 15)