

Are the Best Language Learners from Mars or from Venus? Gender and Vocabulary Acquisition in the L2 Spanish Classroom

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ABSTRACT

This study examines the effect of Spanish learners' gender on their rate of recall of abstract and concrete words. The experiment included forty-six learners of Spanish who were taught twenty-four new words via an instructional treatment based on L2-L1 and L1-L2 translations. The results of the immediate and a delayed posttest showed no effect for gender on the recall of abstract and concrete words separately, but males did significantly better on the overall recall of all words. These results call into question previous findings and suggest that research on gender and vocabulary learning must use various treatments and assessments to discover what effect gender has and in which instructional contexts.

INTRODUCTION

Learners are faced with the difficult task of learning thousands of words in the L2 before reaching the necessary threshold to read authentic texts in the target language. Research in extensive reading has shown that a text coverage of at least 95% (although 98% is optimal) is necessary for L2 learners to be able to adequately comprehend a running text without the aid of a dictionary (Laufer & Ravenhorst-Kalovski, 2010). A 98% text coverage of words would require that an L2 learner of English knows an estimated 8,000 to 9,000 word families (Nation, 2006), a figure which, Schmitt (2008) points out, most learners fail to achieve. Moreover, research in incidental vocabulary acquisition has revealed that pick up rates from incidental vocabulary learning is quite low (Nassaji, 2003; Waring & Takaki, 2003), which led Hill and Laufer (2003) to estimate that for a learner to increase their vocabulary size by 2,000 words through solely incidental learning, the reader would be tasked with reading approximately 420 novels, the rough equivalent of 8 millions words. For these reasons, there is a need for focused intentional learning of high frequency vocabulary to complement incidental learning.

Although instructional delivery of vocabulary can take many forms, a large and growing body of studies in psycholinguistics has shown that the use of imagery as a pedagogical tool can enhance intentional teaching of vocabulary (Barcroft, 2009; Chun & Plass, 1996; Shen 2010). In particular, research in bilingualism has revealed a concreteness effect (Altarriba & Bauer, 2004; de Groot, 1992; de Groot, Dannenburg, & Van Hell, 1994; Duthie, Nippold, Billow, & Mansfield, 2008; Schwanenflugel, Akin, & Luh, 1992), which posits that concrete words are more easily learned than abstract words because concrete words represent tangible objects in the

real world, while abstract words are associated with concepts, ideas, and emotions for which there are no fixed visual referent. More recent studies, however, have found that meaning recall of abstract lexical items can be improved by pairing metaphorical, symbolic, or emotive imagery with the verbal forms of target items (Farley, Ramonda, & Liu, 2012; Farley, Pahom, & Ramonda, forthcoming). However, no known study has specifically considered gender differences as a variable in this context. The current study is a partial conceptual replication of Farley et al. (2012) with a focus on gender differences to determine whether males or females show superior recall of the target abstract and concrete items. Previous research has found that males tend to be more visually and spatially oriented when employing vocabulary-learning strategies, while females generally rely more on auditory techniques (Catalan, 2003). On the other hand, other research has suggested that females use more general language learning strategies overall (Ehrman & Oxford, 1989; Oxford, Nyikos, & Ehrman, 1988; Green & Oxford, 1995). The motivation for the current study was to investigate what effect, if any, is there for gender differences as it relates to meaning recall of abstract and concrete words.

BACKGROUND AND MOTIVATION

A significant issue related to the current study is the previous research on gender differences in second language acquisition and particularly in vocabulary learning, which we discuss below.

Gender Differences, Affective Variables, and Second Language Acquisition

A substantial amount of research has been carried out in gender differences as it relates to language learning. Both biological and social-cultural perspectives have tried to account for observable differences in male and female linguistic competence and performance. Much of the discussion from the biological perspective, however, focuses on L1 acquisition. The general consensus seems to be that young females have an advantage over young males during the early stages of language acquisition, in particular speech development (Maccoby & Jacklin, 1975). There is also the notion that stronger brain lateralization in males, which would entail more reliance on only one side of the brain, could lead to comparatively weaker linguistic ability than their female counterparts (Maubach & Morgan, 2001). Swann (1992), on the other hand, rejects the idea that stronger lateralization on one side of the brain would noticeably impact linguistic ability. The issue is not settled, and evidence from the biological perspective should be viewed tentatively at this point, particularly since the focus is on L1 acquisition.

Research focusing on social-cultural perspectives of gender differences in linguistic ability has much more to say about L2 acquisition as well as learner affective variables. Studies examining factors such as culture, background, and gender have been shown to have an impact on motivation, attitude, and L2 learner beliefs and outcomes (Baker & MacIntyre, 2000; Bernat & Lloyd, 2007; Brantmeier, 2003; Gu, 2002; Kobayashi, 2002; Scarcella & Zimmerman, 1998; Siebert, 2003).

In terms of attitude toward the second language, Baker and MacIntyre (2000) found that when comparing attitudes of native English speaking learners of French, non-immersion males displayed lower attitude levels than females in both immersion and non-immersion groups and males in the immersion group. One possible explanation was that male participants in the study

were more concerned with job-related orientation, which is an indication of extrinsic motivation. It could be that the more extrinsically motivated learners might not maintain that same level of motivation since they are not receiving an equally rich immersion experience and therefore do not see as much of a direct benefit connecting to their occupational goals. Indeed, Kobayashi (2002) found similar results in attitude, reporting more positive attitudes in the Japanese female participants overall in the study. In this case though, Kobayashi suggested that the male-female differences in attitude might be attributed to other societal factors, such as the study of English in Japan perceived to be a feminized field of study. This perception of English study as a feminized subject could tie into other motivational factors related to gender. Cross (1983) contends that the differences in achievement are related to the disproportionate number of female language teachers, rendering a sex-of-the-teacher effect. Young females may view their female teachers as role models thereby instilling a certain measure of motivation to study English.

Other studies have looked at the gender differences and learner outcomes. In general, females have a greater arsenal of language learning strategies than males do (Ehrman & Oxford, 1989; Oxford et al., 1988). Ehrman and Oxford (1989) reported that females, more so than males, rely on a variety of strategies for comprehending the meaning of a text in the L2. In addition to language learning strategies, gender specific background knowledge could also play a role in learner outcomes. Another study on L2 reading (Brantmeier, 2003) pointed out that the differences in gender and their impact on L2 reading comprehension were strongly connected to gender-related subject matter familiarity. This could have important implications for text and vocabulary selection in L2 gender studies since inclusion of genre-specific words that have been shown to be more familiar to one gender have the potential to confound the results of the study.

Although factors such as language learning strategies and gender-related subject matter likely play a role in gender related learner outcomes, it could be that the stronger predictor in learner outcomes is individual differences. Maubach and Morgan (2001), after surveying male and female participants on a number of measures, concluded that while there were some indications of gender differences in language learning and attitude, the more significant differences were connected to individual differences of the participants. With this in mind, results from the above studies should be interpreted tentatively until more studies can conclusively determine how strongly gender impacts affective variables and second language acquisition.

Gender Differences and Vocabulary Learning

A smaller body of research has investigated what impact gender has on L2 vocabulary learning (Catalan, 2003; Grace, 2000; Gu, 2002; Scarcella & Zimmerman, 1998). Some differences in vocabulary knowledge have been attributed to sociocultural factors, such as culture and educational background. In one study, a test of academic lexicon administered to university ESL students revealed that male participants had a better-developed knowledge of academic vocabulary than the females (Scarcella & Zimmerman, 1998). Conversely, in a related study, female participants outperformed the males in terms of general vocabulary size in the L2 (Gu, 2002).

Other studies of a more quasi-experimental design have examined post treatment L2 vocabulary learning and vocabulary learning strategies. One study found no differences between male and female participants for the short and long-term retention of target vocabulary items embedded in a text (Grace, 2000). Grace did find, though, that supplying L1 translations led to

better retention for both male and female participants. Finally, and of particular interest to the current study, Catalan (2003) reported that while both male and female participants employed a number of vocabulary learning strategies, males relied more heavily on image vocabulary techniques, while females favored using rehearsal strategies to a greater degree than their male counterparts. Catalan suggests that this could indicate an auditory preference for females and a visual preference for males to be more commonplace than the reverse. Although previous research in the area of visual input and language learning of abstract lexicon (Farley et al., 2012; Farley et al., forthcoming) has found a positive effect for attaching imagery to related abstract words, none of these studies have specifically looked at the impact of gender. If males do, in fact, have a stronger tendency than females to rely on visual imagery, this could impact the learning efficacy of concrete and abstract words. The current study's purpose is to conduct a conceptual partial conceptual replication of Farley et al. (2012) with beginning Spanish learners by investigating whether gender has an effect when it comes to beginning Spanish learners recalling abstract and concrete words.

RESEARCH QUESTIONS

The present study investigated the following research questions:

1. Does the gender of beginning Spanish learners have an effect on their recall rate of abstract words?
2. Does the gender of beginning Spanish learners have an effect on their recall rate of concrete words?
3. Does the gender of beginning Spanish learners have an effect on their overall recall rate of words?

METHOD AND PROCEDURE

Participants

The present study included learners of Spanish studying at a large university in the Southwest. Each participant was enrolled in one of four sections of a first semester, beginning-level Spanish review course. Participants who scored higher than zero on the pretest were eliminated from the data pool. In addition, via a background questionnaire the researchers gathered basic information from each participant, and those that reported study of other languages or had studied Spanish for more than three years in high school were eliminated from the data pool. In addition, those who had experienced study abroad or who were raised in a bilingual home (speaking any language other than English at home) were also eliminated from the data pool. Finally, those who reported any learning disabilities or hearing impairment and those who reporting gaining any outside help or study time during the period of the experiment were also eliminated from the data pool. While there were seventy-seven learners in the original data pool, that number was reduced to forty-six participants once the pretest scores and background questionnaire were factored in. Among these participants, twenty-two identified themselves as male, and twenty-four identified themselves as female.

The final data pool consisted of monolingual speakers of English (except for their more recent exposure to Spanish via high school and university coursework) who spoke English in their homes. None of the participants in the present study knew any of the words used in the experiment as evidenced by their score of zero on the pretest.

Materials

The following materials were used in the present study: a background questionnaire, treatment (instructional) materials that consisted of a series of multimedia slides presented via computer and projector, and a battery of assessment tasks each given at a different time during the experimental period – a pretest, a posttest, and a second (delayed) posttest.

The background questionnaire solicited each participant's name, languages spoken at home, previous study or experience with Spanish and/or other languages, their gender, their academic major, and their sight or hearing impairments, if any. Finally, the questionnaire asked them if they engaged in additional practice or gained additional exposure to the lexical items at any time during any phase of the experiment.

Treatment Materials

For the treatment (instructional) materials, the researchers employed a set of multimedia slides designed to present the target words. There were three different phases of the slide presentation and 25 slides in each phase (one slide designed to deliver basic instructions to the participants and then 24 slides designed to present the 24 target words – one on each slide.) These three phases of the slide presentation allowed for each participant to gain three exposures to each target item. The slides had a plain black background and Spanish words were written in a light blue font, while English translations (where used) were displayed in white.

During the first phase of the multimedia slide presentation, students were asked to remember the Spanish words that appeared on the screen along with each word meaning presented in English. In addition, they were asked to repeat the words aloud along with the class. The twenty-four words were presented randomly during this phase (as in all three phases).

During the second phase of the multimedia slide presentation, students were required to choose the best English equivalent for each Spanish target item that they viewed on the screen. With each slide, one Spanish target item appeared along with two possible English equivalents. Once the students had made their own selection, the correct English equivalent was revealed on the screen. Again, during this phase of the multimedia slide presentation, the target items were presented in randomized succession.

During the third and final phase of the multimedia slide presentation, the learners were required to select the best Spanish translation between two options after having seen an English word. Once the students had made their own selection, the correct Spanish translation was revealed on the screen. The target items in this third and final phase were also presented in random order.

Assessment Materials

A pretest was designed to measure each learner's previous knowledge of the target items. This pretest simply listed the twenty-four lexical items (12 concrete words and 12 abstract

words) and then asked participants to mark which words they knew and give an English equivalent for each. The twenty-four target items were each specifically chosen by the researchers because they were words that beginning-level language learners were unlikely to be familiar with. Each word was at least two syllables long, and Spanish-English cognates were avoided. None of these target items appeared in the participants' textbook for the Spanish review course in which they were presently enrolled.

The pretest was presented on one 8.5x11 inch piece of white paper with text presented in Times New Roman font and 12 point in size. The instructions for the pretest were presented in English and directed the learners to write the English equivalent for each Spanish target item in a blank space to the right of each target item. The twenty-four words were presented just below these instructions with ample room for participants to give an equivalent in English if they knew one. Of course, all participants in the present study received the same pretest. The immediate posttest and the delayed posttest mirrored the format of the pretest in every way except that the randomized order of the target items was different for each testing phase.

Procedure

Every phase of the present experiment occurred during the learners' regularly scheduled class periods. During each class period, participants sat in chairs arranged in semicircular fashion facing the multimedia slides. The participants' regular teachers did not receive any information in advance about the nature of the experiment or the words used in the experiment. In addition, they were not present during any phase of the experiment.

On Day 1 of the experiment, the researchers delivered basic information in English about the experiment via a handout to each participant in the study. After the participants read the handout, they then received the pretest. The pretest was designed to show which words, if any, the participants were already able to define. The pretest was comprised of the 24 Spanish words that would later appear during the instructional phase and once again on each posttest. These words were presented in a randomized order to avoid any incidental effect for word order. Participants were required to fill in the blank next to each Spanish word with an English equivalent if they knew one. The pretest took about 5 minutes to complete. Any participant that knew the English equivalent for one word or more was eliminated from the data pool for the experiment.

Day 1 continued with the instructional treatment. It is important to note that the same researcher carried out the treatment phase in all 4 course sections. As stated earlier, the instruction was delivered via a set of multimedia slides that presented the target words with three phases of the slide presentation and 25 slides in each phase. The first slide in each phase delivered the instructions to the participants and the 24 remaining presented the target words, one per slide. During Phase 1, the researcher asked the participants to learn the Spanish words that appeared on the screen (along with translations in English) the best they could. The researcher also led them in a read-aloud (repeating after the researcher) exercise. Then, in Phase 2 of the instruction, the instructions asked participants to select the English equivalent for each Spanish target. On each slide, a target item appeared along with a binary option of two possible English equivalents. After participants made a selection, the researcher revealed the English equivalent on the projector screen. Finally, during Phase 3 of the instructional treatment, the researcher asked learners to choose the Spanish equivalent for each English word with a binary option of two Spanish targets being provided. After participants selected an answer, the researcher

revealed the correct Spanish equivalent to the participants. All three phases of the instructional treatment combined lasted about 15 minutes.

Immediately after the instructional treatment was completed, the researcher invited participants to take the immediate posttest. The structure of the immediate posttest was identical to the pretest in that there were 24 target items and participants were required to give the English equivalent for each. (The target items on the immediate posttest were presented in a newly randomized order, different from the order of the pretest.) Participants took approximately eight minutes to complete the immediate posttest.

One week later, the researcher invited students to take the delayed posttest. Again, the structure of this delayed posttest was identical to the pretest and immediate posttest with 24 target items being presented and an English equivalent for each being required. Here, too, the target items were presented in another newly randomized order, different from the previous tests taken.) Once again, participants took approximately eight minutes to complete the delayed posttest.

After the delayed posttest, the researcher asked participants to complete the background questionnaire. Using the responses to this questionnaire, the researchers were later able to eliminate the following participants from the final data pool: (1) anyone that reported study of other languages; (2) anyone reporting study of Spanish for more than three years in high school; (3) anyone who had been on study abroad; (4) anyone who was raised in a bilingual home, speaking any language other than English at home; (5) anyone who reported any learning disabilities or visual or hearing impairments; and (6) anyone who reported gaining any outside exposure or additional study or practice time during any phase of the experiment. Participants only needed several minutes to complete the background questionnaire, and this concluded the experiment.

Scoring

Each question on the pretest and posttests was worth 1 point. This meant that the total possible score for any individual test was 24. Note that only the participants who scored a 0 on the pretest were included in the final data pool. In addition, only those participants whose responses on the background questionnaire (described in previous section) did not present any conflicts were included in the final data pool. The data from each of the four course sections was compiled; means, standard deviations, minimums, maximums, and ranges were recorded, and the data was statistically analyzed to find significant differences, if any, between the performance of male and female participants. The findings are presented in the next section.

RESULTS

There were no differences between the males and the females on the pretest, as only the participants who received a score of 0 on the pretest were included in the final data analysis. Table 1 shows the descriptive statistics for the males' and females' scores on abstract, concrete, and total words on the pretest, immediate posttest, and delayed posttest.

Table 1. Descriptive Statistics for Mean Scores by Gender and Time

Measure	Group	N	Abstract		Concrete		Total	
			M	SD	M	SD	M	SD
Pretest	Male	22	.00	.000	.00	.000	.00	.000
	Female	24	.00	.000	.00	.000	.00	.000
	Total	46	.00	.000	.00	.000	.00	.000
Immediate Posttest	Male	22	4.68	2.607	6.18	2.519	10.86	4.794
	Female	24	4.21	2.502	5.50	3.007	9.71	5.137
	Total	46	4.43	2.536	5.83	2.775	10.26	4.955
Delayed Posttest	Male	22	1.23	1.152	1.68	1.555	2.91	2.389
	Female	24	1.17	1.404	1.67	1.523	2.83	2.565
	Total	46	1.20	1.276	1.67	1.521	2.87	2.455

In addition, Figures 1-3 provide a visual representation of the mean scores for the abstract, concrete, and total words during the three testing times for the males and females in each group.

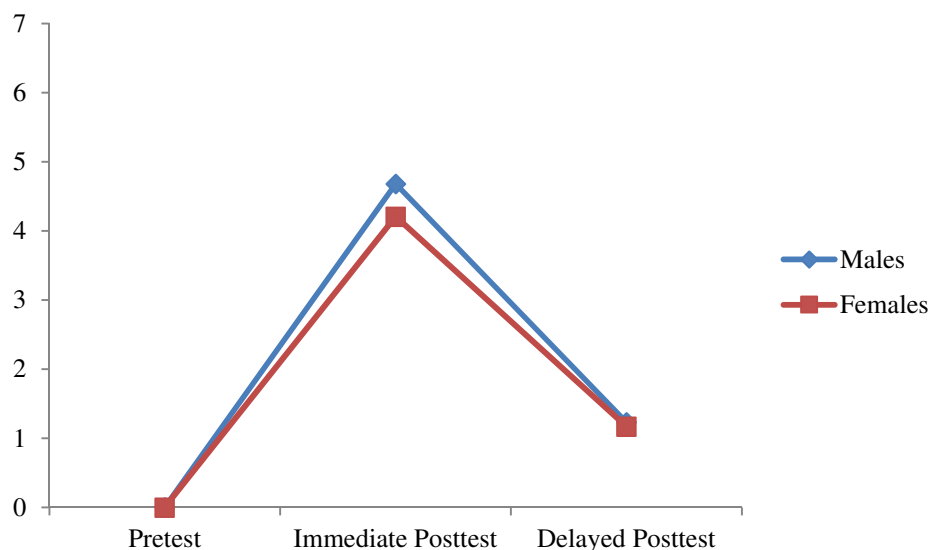
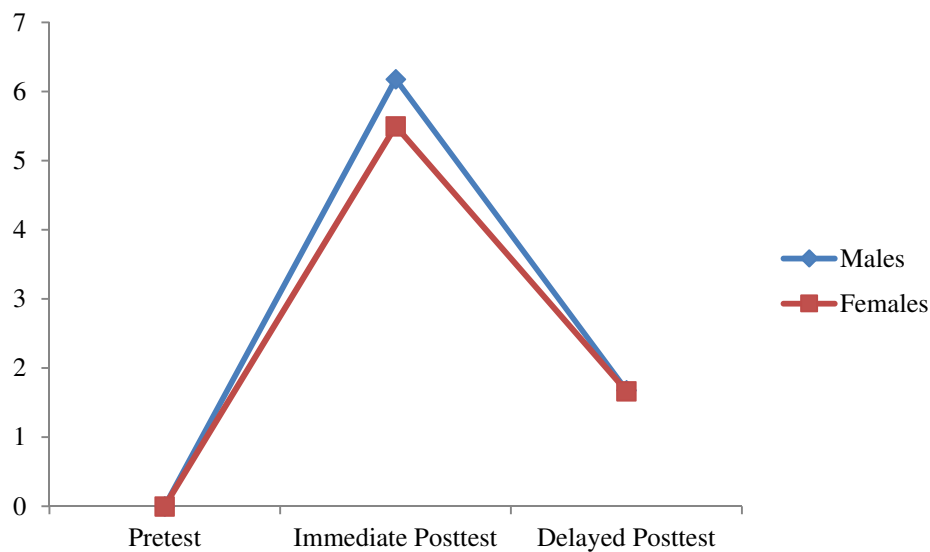
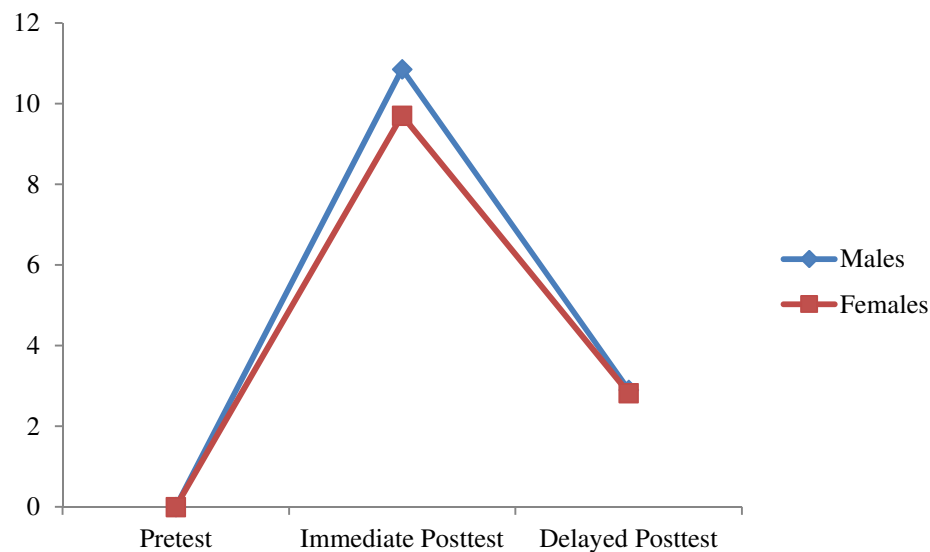
Figure 1. Comparison between Males and Females on Abstract Words

Figure 2. Comparison between Males and Females on Concrete Words**Figure 3.** Comparison between Males and Females on All Words

A series of repeated measures ANOVAs were conducted to address the research questions. To investigate whether biological gender has an effect on beginning English-Spanish bilinguals' rate of recall of abstract, concrete, and total words, we conducted a series of repeated measures ANOVAs on the abstract, concrete, and total scores of male and female participants. Tables 2-4 show the results of the repeated measures ANOVAs on the abstract, concrete, and total words.

Table 2. Summary Table for Repeated Measures ANOVA Using Male and Female Scores on Abstract Words

<i>Source</i>	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Between-subjects Effects Gender	1	1.091	1.091	0.300	0.586
Within-subjects Effects Time	2	485.785	242.892	106.812	0.000
Time x Gender	2	1.524	0.762	0.335	0.716
Error (gender)	44	159.814	3.632		
Error (time)	88	200.114	2.274		

Table 3. Summary Table for Repeated Measures ANOVA Using Male and Female Scores on Concrete Words

<i>Source</i>	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Between-subjects Effects Gender	1	1.859	1.859	0.379	0.541
Within-subjects Effects Time	2	830.726	415.363	159.334	0.000
Time x Gender	2	3.480	1.740	0.667	0.516
Error (gender)	44	215.975	4.909		
Error (time)	88	229.404	2.607		

Table 4. Summary Table for Repeated Measures ANOVA Using Male and Female Scores on All Words

<i>Source</i>	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Between-subjects Effects Gender	1	2649.364	2649.364	183.114	0.000
Within-subjects Effects Time	2	2586.806	1293.403	157.189	0.000
Time x Gender	2	9.588	4.794	0.583	0.561
Error (gender)	44	636.607	14.468		
Error (time)	88	724.093	8.228		

Table 5. Summary Table for Repeated Measures ANOVAs Using Abstract, Concrete, and Total Words

Words	Significant Difference	
	Time	Gender
Abstract	yes (p=0.0001)	no (p=0.586)
Concrete	yes (p=0.0001)	no (p=0.541)
Total	yes (p=0.0001)	yes (p=0.0001)

For abstract words, the repeated measures ANOVA showed an effect for Time ($p = 0.0001$) but no effect for Gender ($p = 0.586$). For concrete words, the repeated measures ANOVA similarly showed an effect for Time ($p = 0.0001$) but no effect for Gender ($p = 0.541$). However, for total words, the repeated measures ANOVA showed an effect for Time ($p = 0.0001$) and an effect for Gender ($p = 0.0001$). The results of the repeated measured ANOVAs are summarized in Table 5.

DISCUSSION AND CONCLUSION

Our first research question examined whether the gender of beginning Spanish learners has an effect on their recall rate of abstract words. The results indicate that gender does not have a significant effect when it comes to the recall of abstract words on the immediate posttest or delayed posttest. Both genders made significant gains from the pretest to the immediate posttest. Similarly, there was a significant drop from the immediate posttest to the delayed posttest for both males and females. This is similar to the findings of Farley et al. (forthcoming), and we believe it can be explained by our participants' lack of practice with the vocabulary between the immediate and the delayed posttest. We did not want the subjects to study the words outside of the context of our study in order to avoid possible effects due to varied practice. The lack of significant difference between males and females with abstract lexical items suggests that neither gender has an advantage in recalling abstract words.

The second research question examined whether the gender of beginning Spanish learners has an effect on their recall rate of concrete words. Similar to the findings for abstract words, the results for the second research question show that gender does not play a significant role in learners' recall of concrete words. These results seem similar to Grace (2000) who also did not find a difference between males and females on the short and long-term vocabulary retention rate. Like Grace (2000), our study also used L2-L1 translations to aid the vocabulary retention rate of males and females, but our study also looked at how males and females recall two types of words (abstract and concrete). The findings for the first and second research questions suggest that bilingual lexical representation and access of concrete and abstract words (separately) is not influenced by gender as assessed by the current experiment.

The third research question investigated whether the gender of Spanish learners has an effect on their overall recall rate of all words. Contrary to Grace (2000), who found no differences between males and females, and to Ehrman and Oxford (1989), Oxford et al. (1988), and Green and Oxford (1995), who suggest that females use more language learning strategies, the current study indicates that males did better than females on all the words combined. Although when abstract and concrete words were analyzed separately each did not yield a significant result for gender, males did significantly better on the abstract and concrete words as a whole. This calls into question previous findings and assertions about gender and language learning, including Maubach and Morgan's (2001) suggestion that the linguistic ability of males might be weaker than that of females for biological reasons. It may be that if further research is conducted, gender could prove to be not as influential or important as we imagined. Our experiment is only one study among many. Still, the data suggests that the male-female comparison does not always yield the same findings in every context.

From a pedagogical perspective, the current study seems to indicate that males potentially recall words that are taught and tested via translations better than females. Second language teachers may wish to use a variety of different methods (in addition to L1-L2 and L2-L1 translations) for teaching abstract and concrete words in order to aid the vocabulary acquisition of both males and females, as well as learners of different learning styles and those exhibiting other individual differences in the classroom.

There are several limitations to the present study. First, our study only involved beginning-level Spanish learners. Hence, no conclusions can be drawn about how intermediate-level or advanced-level learners might perform in a similar word-learning experiment. In addition, the present experiment only involved 24 lexical items from Spanish. Therefore, one

cannot predict how performance might be different if other words or other types of words were used in an experiment like the present one. Finally, the treatment phases of the present experiment involved word translation tasks, while the assessment phases involved a recall-translation task as well. Therefore, from the present experiment, one can only draw conclusions about performance on tasks like these. Results could be very different if a different type of assessment and/or instructional treatment were employed. Future research on gender differences in word learning might employ a variety of treatments and assessments in order to gain a bigger picture of exactly what effect gender has and in which instructional contexts.

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APPENDIX

Target Words

Abstract Words

Bondad	[kindness]
Chismorreo	[gossip]
Congoja	[sadness]
Derrota	[defeat]
Desenvoltura	[confidence]
Espanto	[fear]
Haraganería	[laziness]
Ira	[wrath]
Pujanza	[strength]
Regaño	[scolding]
Testarudez	[stubbornness]
Vergüenza	[shame]

Concrete Words

Alce	[moose]
Cobija	[blanket]
Enano	[dwarf]
Estanque	[pond]
Foca	[seal]
Grulla	[crane]
Guepardo	[cheetah]
Hada	[fairy]
Lana	[wool]
Mozo	[bellhop]
Sapo	[frog]
Trasgo	[goblin]