

## DO USERS FIND THE WORD BY WORD SYSTEM TO BE USABLE AND HAVE PERCEIVE VALUE GAINED IN REGARDS TO FOREIGN LANGUAGE VOCABULARY RETENTION AND UNDERSTANDING?

### ABSTRACT

Word by Word is an integrative vocabulary system that helps language learners not only build their vocabulary but integrate learning into their daily life. The two-part vocabulary system pairs a vocabulary learning system and augmented browser file to integrate new words into your own personal lexicon. The pairing of the two systems ensures that users see and learn the vocab through continual exposure. The team created a beta system that had limited function to test the overall usability and participant satisfaction of using the system.

For this particular beta version, Word by Word focused on Spanish vocabulary. The system was composed of ten vocabulary word pages and five questions per word. This usability test looked to assess the systems usability and participant perceived satisfaction and learning retention. The test consisted of five participants working through a three part usability test that spanned a week period to mimic a traditional weekly study session that could be assigned by a teacher or professor.

### METHODS

This usability test and survey combination was designed to test and gather users' actual response to the system. Research was conducted using a three-part usability test that had each participant interact with the system for a total of 30 minutes. Because the system is based on a gradual, overtime learning model, the test must be conducted over a span of time, using multiple exposures. While an optimal study would have more sessions and be conducted over a larger period of time, one week posed a strong time frame that showcased early retention and potential for future retention. The total study session of 30 minutes was chosen because it is the recommended weekly study goal. The three-part usability test took place over Zoom and was observed by the team.

Before starting the test, participants were screened using a screener survey to ensure no participants have ever studied Spanish. Once passing the screener, participants participated in the test. The test was conducted in three parts in one week. Part one of the usability test consisted of a Spanish leveling test ot assess the participants general knowledge of the Spanish language. Next participants took a Spanish vocabulary pre-test to serve as a basis of their language retention. The last task of part one, completing a 15 minute session with the Word by Word system.

The second part took place 24 hours after the first part. Participants first took a test to see how many words they remembered from their last session. Then completed a 10 minute study session on Word by Word.

The third part took place 5 days after the first test. Participants first took a definition test to assess their retention and understanding of their new vocabulary. After completing their definition test, they completed a 5 minute study session. Once finished they took the Spanish vocabulary post-test to see their overall learning retention.

Once all three parts of the test were completed, the participants took the perceived value survey, where they rated their experience with the system, their perceived value gained, and general rating of the system.

### DATA & RESULTS

#### RETENTION TEST SCORES

##### SPANISH LEVELING TEST

**30%** **50%** **38%**  
MIN. SCORE MAX. SCORE AVG. SCORE

##### VOCABULARY PRE-TEST

**30%** **90%** **52%**  
MIN. SCORE MAX. SCORE AVG. SCORE

##### VOCABULARY RECALL TEST

**100%** **100%** **100%**  
MIN. SCORE MAX. SCORE AVG. SCORE

##### VOCABULARY DEFINITION TEST

**100%** **100%** **100%**  
MIN. SCORE MAX. SCORE AVG. SCORE

##### VOCABULARY POST-TEST

**100%** **100%** **100%**  
MIN. SCORE MAX. SCORE AVG. SCORE

#### COMPARISONS

**5/5** PARTICIPANTS INCREASED THEIR SCORE

**5/5** PARTICIPANTS RETAINED WORDS

**5/5** PARTICIPANTS THOUGHT THEY EARNED A HIGHER SCORE ON THEIR POST TEST

#### PRECEIVED VALUE

I feel like I learned a lot from using Word by Word.

**0%** **0%** **0%** **100%**  
DISAGREED NEITHER AGREED STRONGLY AGREED

I feel as though I could confidently use the words I have learned

**0%** **0%** **40%** **60%**  
DISAGREED NEITHER AGREED STRONGLY AGREED

I would recommend Word by Word to a friend

**0%** **0%** **0%** **100%**  
DISAGREED NEITHER AGREED STRONGLY AGREED

I would recommend Word by Word to a language professor / teacher

**0%** **0%** **20%** **80%**  
DISAGREED NEITHER AGREED STRONGLY AGREED

#### USEFULNESS OF WORD PAGE ELEMENTS

	Extremely useful	Moderately useful	Slightly useful	Neither useful nor useless	Slightly useless	Moderately useless	Extremely useless
Definition	5	-	-	-	-	-	-
Pronunciation	4	1	-	-	-	-	-
Video	-	2	1	2	1	-	-
Synonyms	4	1	-	-	-	-	-
Antonyms	1	1	2	1	-	-	-
Photo	3	2	-	-	-	-	-
Contextual Paragraph	3	-	2	-	-	-	-
Word Hook	2	1	2	-	-	-	-
Quotes	3	1	1	-	-	-	-

### ANALYSIS

Participants all showed improvement in their knowledge of the Spanish language, while the data is not conclusive it hints towards the value of the Word by Word as a learning tool. Though the results could have been due to repeated exposure over a short period of time.

Participants all found high perceived value from their experience, with most participants willing to recommend the system. They also felt as though they learned from the system. They felt confident in what they learned.

From a usability standpoint, users loved the branded colors and visual layout of the system. All participants noted the overall aesthetic appeal of the system. Many pointed out how fun the word pages were. Many found the system to be simple to use and easy to follow. The colors made elements pop and catch their attention.

Users noted they did not like how word pages opened in new pages and the word pages were very busy. They also found the presence of both spanish and english to slightly confusing. Other usability dislikes were the incorrect view of the page, as many users had to zoom out to fit the elements on the page.

### ERRORS

- As a beta version of the site, the usability inherently had errors
- Small testing pool limits the accuracy and ability to use data as predictions

### RECOMENDATIONS

#### Usability and Design

Moving forward the Word by Word team should look to fix the initial coding errors. Particularly the viewing window for the page as well as the overlapping options. The team should also explore a way to open word pages in the same window as the questions in order to offer a more seamless transition between elements of the system. The team must also research better ways to incorporate multiple languages.

The team should look to further expand the word pages. Adding more relevant information to the word pages. Improving the video quality through shortening the clip. Offering more information to roots and synonyms. The word pages should also put the definition more prominent on the page to make it stand out more. The team should also look to improve the presentation and quality of antonyms.

#### Further Research:

Once creating a fully functional site, the team should look to expand the test to measure the actual retention of participants. The test should look to test a wider range of users for an extended period of time. Such a test would require a fully functional system. For vocabulary retention testing the team would need to test around 250+ participants.