Using a smart phone to learn Spanish: Does it work and will students use it?

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Introduction

Language learning with technology has been available for decades through cassettes, video, computers and television (Luque-Agulló and Martos-Vallejo). In recent years, mobile devices have penetrated the second language classroom, allowing for new platforms of instruction for professors a new avenue to access language learning has become instantly available second language learners (McSweeney). Access to different technology does not imply effective language teaching or learning, however. This study sought to measure student perception of language-learning technology use as compared to their performance with vocabulary familiarity. The results can provide insight into the perceptions and practice of technology with second language (L2) learners.

Previous Research

Vocabulary Learning

Understanding vocabulary in a second language is an essential to communicating in a language (Fehr et al.; Ko). The manner in which learners are taught vocabulary may result in their ability to not only retain the words in the memory but utilize the vocabulary in the second language to communicate. Huang found that higher involvement with language vocabulary resulted in a higher gain of vocabulary L2 knowledge in a meta-analysis of vocabulary acquisition studies. In other words, the more learners use the vocabulary to communicate when learning new words, the more learners are able to comprehend of the second language.

From a psycholinguistic view, the ability to understand and effectively use vocabulary in the L2 to communicate requires mapping lexical forms to their meaning in the learner's brain (Jiang). A learner must not only be able to connect the meaning of the word to its lexical form, but be able to recognize the form of the word in different contexts, pronunciations, and so forth. In order for this to happen, second language instruction and learning must provide a meaningful context for the acquisition and practice of vocabulary (Laufer). Candry, et al., found that presenting new vocabulary words in the L2 in context contributes to an increased gain in vocabulary recall as opposed to presenting new vocabulary in an isolated manner, or in a non-contextualized way, i.e. simply presenting vocabulary with definitions, as compared to presenting vocabulary in context that learners must interpret. See also VanPatten and Oikennon for further explanation of processing necessary for comprehension and how it compares to learners who receive an explanation.

Mobile Learning

Mobile learning, also known as m-learning, refers to the use of portable devices to allow mobility of learners and accessibility to language learning. M-learning is often associated with e-learning which follows the same concepts of learners being able to learn anywhere and at any time, with the main distinction being the use of a mobile device; usually a mobile phone. Another definition of m-learning is the ability for the learner to learn when not in a classroom (Kadirire; Keegan; O'Malley et al.). These definitions all focus on the ability for the learner to learn outside of the classroom via some form of electronic device. Mobile devices are not new to the generations of students currently in

classrooms, however, m-learning being implemented as a supplement to the language learning classroom is a relatively recent phenomenon (Koohestani).

Researchers have found mobile learning as a beneficial supplement to methods of face-to-face language instruction (Hayati, Jalilifar, & Mashhadi). Additionally, the willingness of learners effectively utilizing m-learning is a factor to be considered. Enthusiasm of students to utilize the technology has been shown to influence the effectiveness of m-leanering. When students are unwilling to use the technology effectively, then the effectiveness diminishes (Stockwell).

Mobile Learning in the Classroom

Language learners can benefit from the implementation of mobile learning in the classroom. Lu investigated the difference in English vocabulary gains for English Language Learners (ELLs). The research indicated that teaching vocabulary via SMS texts shows a greater gain in vocabulary knowledge than the traditional paper-pencil techniques. Similarly, Hayati, Jalilifar, & Mashhadi evaluated the efficacy of three modes of language learning. The results demonstrated that SMS was viable, cost efficient and effective in teaching English idioms to ELLs.

M-learning has also shown to be beneficial to second language learners in the form of utilizing mobile devices to communicate in the second language. McSweeney found that English language learners who texted more in English tended to have higher academic skills. Students texting in the second language are creating more opportunities to understand language and subsequently more chances to create meaningful language to express themselves.

Texting is not new for the new generation of students known as digital natives, those who grew up with Web 2.0 technology like mobile devices. Chang, Pearman, & Farha posit that implementing m-learning in the classroom is imperative to account for the learning styles of this new generation of students. They claim m-learning provides the necessary bridge between learning the content and the students' preference for use of technology.

Students' Perspective on Mobile Learning

The main issue with m-learning is that it is limited by use. In other words, m-learning cannot be beneficial if students are unwilling to utilize mobile devices in learning languages. Therefore, it becomes necessary to understand students' perspectives on m-learning. Thornton & Houser surveyed Japanese students learning English and found that the students positively perceived using mobile devices to receive information about classes. Similarly, Hayati, Jalilifar, & Mashhadi found that students who received SMS-based were enthusiastic about this mode of learning in comparison with those participants receiving non-SMS-based methods of instruction. These results are replicted in Lu, with a questionnaire that indicated that students generally have positive attitudes toward learning vocabulary via the mobile phone. M-learning in university courses was also positively perceived and accepted by university students (Sarrab). The positive perception of m-learning implies that the implementation of m-learning is might be an effective mode of second language pedagogy to the new generation of digital citizens in the classroom.

The current study sought to gauge students' perception of m-learning, and compare this perception to gains in familiarity of new vocabulary through m-learning interventions.

Research Questions

The research questions that guided this study were the following:

1. Are learners who interpret sentences with new vocabulary more familiar with words than those that only read definitions?
2. What are students' perceptions of m-learning?

Hypothesis

The researchers hypothesize that the sentence interpretation group will report a higher familiarity with the vocabulary than the definition only group. Second, we believe that participants will have a positive view of m-learning.

Method

Participants

29 participants identified as intermediate second language (L2) learners of Spanish at a mid-sized liberal arts university in the southeast. Intermediate learners were defined as non-native speakers that have completed some elementary high school or university Spanish. The 29 participants were randomly assorted into two groups: group 1 was labeled definitions only and group 2 was labeled definitions and sentence comprehension task.

Materials

A pretest consisting of 50 vocabulary words was used to ascertain the participants' knowledge of Spanish vocabulary. The words used were nouns, adjectives, and verbs that were identified from the instructional textbook *Así lo veo* (Leeser et al.). These words were selected from the text as vocabulary that was not explicitly taught in the course, and the students would only have encountered the words incidentally. Participants were asked to rate the vocabulary words on a 3-point Likert scale (Figure 1).

Figure 1: Pretest Likert-scale

1	2	3
I have never seen this word and I don't know the meaning	I have seen this word but I'm not sure of the meaning	I have seen this word and know the meaning

Based on results from the pretest, 20 words that were unfamiliar to the majority of the participants were chosen for the treatment.

Following the pretest, the participants in both groups received the Spanish vocabulary by the SMS text message. For group 1, the vocabulary was accompanied with definitions, and parts of speech in Spanish (see Appendix A). For the participants in the sentence interpretation group 2, the vocabulary was accompanied with definitions in Spanish and a comprehension task containing true false sentences (see Appendix B). The participants in both groups received the same vocabulary by mobile phone SMS at approximately 10 a.m. each Monday morning for four weeks.

To determine the efficacy of the two methods of instruction in the familiarity of Spanish vocabulary, a post-test was administered after the final texts were sent. The post-test was identical to the pretest (Figure 1). It was expected that participants would have a higher familiarity with the 20 vocabulary words sent over the course of the four weeks. The test conditions were identical for both the pretest and post-test to ensure continuity.

To understand participants' perceptions of mobile learning and their interactions with the experiment, participants were asked to complete a post study survey. The survey consisted of 2 questions that were made using a 3-point Likert scale. The first question asked learners to self-rate their participation in the experiment ranging from 1 (I did not look at the messages) to 3 (I looked at the messages and answered the prompt) (Figure 2). The second question evaluated the participants' perception of technology use in language learning ranging from 1, I think using technology to learn Spanish is not beneficial, to 3, I think using technology to learn Spanish is beneficial (Figure 3). Responses were anonymous to ensure honesty from the participants.

Figure 2: Participation

I did not look at the messages	I looked at the messages	I looked at the messages and answered the prompt
1	2	3

Figure 3: Participants' Perception of Technology Use in the Classroom Question

I think using technology to learn Spanish is not beneficial

I think using technology to learn Spanish is somewhat beneficial

I think using technology to learn Spanish is beneficial

1   2   3

Procedure

Participants in the study were given a pretest of 50 words in Spanish, chosen from the student textbook. The pretest asked participants to rate the word in one of three categories of familiarity (Figure 1). Of the 50 words, 20 were rated unfamiliar by the majority of participants (1, I have never seen this word and don't know the meaning). The two groups described above received SMS-based materials that were sent to their respective mobile devices. Group 1, identified as Spanish definitions, received five vocabulary words one day a week for four weeks, including the part of speech and definition in Spanish. Participants in the Spanish definitions group were asked to reply to the message to communicate that the message was received. Group 2, identified as sentence interpretations, also received 5 vocabulary words one day a week for four weeks. In addition to the part of speech and definitions in Spanish, the participants received statements using the vocabulary. The sentences were true or false based on the definition of the Spanish vocabulary words provided. The participants were asked to reply with true/false for each statement. Finally, the post-test for both groups as well as a survey were used in the study for data collection and analysis.

Results

Pre-test Comparison

To ensure that participants were randomly assigned effectively, an independent samples t-test comparing the two groups was conducted (Table 3). The group that received only words with definitions in Spanish had a mean of 1.388 (M = 1.388) and the group that received the definitions and a sentence comprehension task had a mean of 1.390 (M = 1.390). There was no statistically significant difference between the two groups on the pre-test indicating that the randomization was effective.

Table 2: Statistical Analysis of Pre-test Results

Group	Mean	t	p
1: Spanish Vocabulary	1.388		
		-0.024	0.981
2: Sentence Comprehension	1.390		

The Success Rate of Learning Spanish Vocabulary

To identify the success rate of learning Spanish vocabulary for both instructional methods, a t-test was conducted that compared the two groups on the post-test (Table 3). The data was drawn from 8 of the 20 vocabulary words that were taught from the instructional methods as some participants had stopped scoring from the first page. The group receiving solely Spanish vocabulary had a mean of 1.867 (M = 1.867) and the group receiving the sentence comprehension task had a mean of 1.742 (M = 1.742). Both groups reported more familiarity with the words.

Table 3: Statistical Analysis of the Success Rate of Learning Spanish Vocabulary (T-Test)

Group	Mean	t	p
Spanish Vocabulary	1.867		
		0.699	0.492
Sentence Interpretation	1.742		

To measure participants familiarity with Spanish vocabulary, a paired samples t-test was used (Table 4). The results of the paired samples t-test (t = -5.326, p < 0.001) were significant. Thus, participants who participated in the experiment appeared to have increased their familiarity with the words.

Table 4: Statistical Analysis of the Success Rate of Learning Spanish Vocabulary (Paired Samples T-Test)

t	p
-5.326	< 0.001

The Difference in Success Rates Between the Two Instructional Methods

Based on the statistical analysis above, the results demonstrate that there was no difference between the two groups in their improvement of the familiarity of Spanish vocabulary words. To confirm this, an ANCOVA (Analysis of Covariance) was conducted (Table 5). This test was used to determine whether there was a difference in the post-test scores between the two instructional methods groups while controlling for the scores on the pre-test. The results indicated that the pre-test scores significantly predicted the post-test scores (F = 5.522, p = 0.267) meaning that participants who did better before the interventions were administered continued to do better after the interventions. Next, the

results indicated that the group that the participants were in did not matter (F = 0.601, p = 0.445). Whether the participants were in the Spanish vocabulary or sentence comprehension group did not make a difference in the post-test scores.

Table 5: Statistical Analysis of the Difference in Success Rates Between the Two Instructional Methods (ANCOVA Test)

Variable	F	p
Pre-Test Scores	5.522	0.267
Instructional method Group	0.601	0.445

The Analysis of the Results from the Poststudy Survey

To determine the participants' participation in the survey and the perceived benefit of using technology to learn Spanish, data was analyzed from the poststudy survey. For question 1, which indicated the level of participation, the majority of the participants from both groups (75%) reported that they looked at the text messages but did not respond as indicated in the directions. For question 2, which indicated the perceived benefit of technology in learning Spanish, 50% saw it as somewhat beneficial and 43.67% saw it as beneficial.

Table 6: The Mean Score and Standard Deviation of the Poststudy Survey

Question	n	Mean	%(1-scale)	%(2-scale)	%(3-scale)
1. Participation	32	1.938	15.625	75.000	9.375
2. Benefit of technology use in learning Spanish	32	2.375	6.25	50.000	43.75

Discussion, Limitations and Future Directions

The purpose of this study was to determine if m-learning is effective in improving learners' vocabulary familiarity. Based on the above results, the researchers can conclude that it was effective and lead to improvement in vocabulary familiarity. The difference between the treatment types were not statistically different, so it is reasonable to conclude that there is not enough data to claim that sentence comprehension in this study led to greater vocabulary familiarity than simply reading definitions. Finally, the majority of the participants reported that they felt that technology in language learning is at least somewhat beneficial.

It was not surprising that the sentence comprehension task group did not outperform was the group that just read definitions based on the survey about participation. The survey indicated that participants simply looked at the messages, but did not respond. This was also confirmed by the researcher as very few if any students in either group responded with anything other than a message indicating that it had been received. Therefore, it is unlikely that the learners were actually interpreting the sentences. This is something to

consider for implementation. Students were more likely to look at the definitions than complete the sentence interpretation task. Possibly instruction beyond familiarity needs to happen in the classroom where the instructor can ensure participation, regarding the comprehension task.

Furthermore, the population of participants was relatively small for the study (n = 29). The vocabulary analyzed was small (n = 8) due to participants not completing the back side of the posttest. As such, the results of this study are from a small population and smaller number of words analyzed.

A study with a more representative population could provide further insight into both the benefit of m-learning in second language acquisition in addition to the perception of technology use in the language classroom. Also, a longitudinal study with more vocabulary could assess the long-term benefits of m-learning in vocabulary familiarity. It appears that m-learning has potential for second language acquisition if there is a way to encourage student participation.

Conclusion

Overall, the results of the study suggest that m-learning increased participants' familiarity of new Spanish vocabulary, though one group did not outperform the other. Additionally, the data shows that students have a positive perception of incorporating technology into the language classroom.

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Appendix A: *Spanish vocabulary sent to participants with Spanish definitions*

Directions: Read the definition of each word and respond that you have read them.
Sample SMS
1. El amargado: (n) Una persona quien nunca puede ver las cosas positivas. 2. Citadina/o: (adj) Urbano o la ciudad. (n) Habitante de la ciudad. 3. Alumbrar: (v) Poner luz o luces en algún lugar. 4. La peste: (n) Enfermedad contagiosa que produce la muerte. 5. Elogiar: (v) Hablar altamente bien de algo.

Appendix B: Spanish vocabulary sent to participants with Spanish definitions and sentence interpretation

Direcciones: Lee la definición de cada palabra y después leer cada frase y indica que si es cierta (C) o falsa (F)

1. El amargado: (n) Una persona quien nunca puede ver las cosas positivas.
2. Citadina/o: (adj) Urbano o la ciudad. (n) Habitante de la ciudad.
3. Alumbrar: (v) Poner luz o luces en algún lugar.
4. La peste: (n) Enfermedad contagiosa que produce la muerte.
5. Elogiar: (v) Hablar altamente de algo.

LAS FRASES
1. Los altos edificios son parte de los lugares citadinos. (C/F)
2. La oscuridad alumbra la Tierra por la noche. (C/F)
3. La jefe elogia a sus trabajadores por el buen trabajo. (C/F)
4. Durante el Medioevo había una peste que anuló Europa. (C/F)
5. Mi mejor amigo es un amargado porque tiene una buena actitud cada día. (C/F)