

Acquire: Vocabulary Learning Program

Executive Summary

The language learning industry is a quickly growing market, with companies like Rosetta Stone reaching annual revenues of over \$250 million. An essential part of mastering a new language is building a working vocabulary to both understand and be understood in the new language. Research suggests that language learners may need to be exposed to a new word up to 16 times before that word is learned. The *Acquire* vocabulary learning program provides a systematic way for the language learner to take control of his or her vocabulary study. Users can review vocabulary by topic, difficulty, or last-reviewed date, or they can study a random combination of words. The user has complete control of the vocabulary studied, including giving priority to more difficult words and tracking the date that each word was last studied to ensure words are not neglected. Lastly, at the end of each study session, *Acquire* sends the list of the day’s vocabulary to the user’s email so the language user can study their vocabulary from their smartphone throughout the day.

Acquire Program Background

The *Acquire* vocabulary study system has three main components: vocabulary database, quiz setup, and vocabulary quiz.

1. Vocabulary Database

Figure 1 (below) is an image of the vocabulary database. Three buttons at the top of the database—“Let’s Learn,” “Add New Vocabulary,” and “Smart Study”—allow the user to navigate, interface with, and study the words in the database.

Let's Learn

Add New Vocabulary

Smart Study

Topic	Vocabulary/Phrase	Examples/Usage	Definition	Definition (English)	Difficulty	Last Review Date
Smoking in China	소비국	이 상품의 소비국은 물건을 사들여 쓰는 나라		Consumer nation	12	12/5/2014 16:31
	흡연	임산부에게 흡연은 ? 담배를 피움		Smoking	13	12/5/2014 16:31
	당국	당국의 허가를 얻다	사무나 행정상의 임무, 책임	Official (government	14	12/5/2014 16:31
	줄이다	우리 회사에서는 오히려 적어지게 하다		Reduce	30	12/4/2014 13:07
	수	연구원 수가 두 배로 세거나 헤아린 양(量)의 크기		Numbers, number of	14	12/3/2014 17:39
	방침	방침을 세우다. 학교 앞으로 일을 처리해 나갈 방		Policy	7	12/3/2014 17:38

Figure 1. View of Vocabulary Database

Figure 2. The user form for adding a new word to the database

When the user clicks the “Add New Vocabulary” button, a form appears (see Figure 2) that allows the user to enter a new vocabulary word, its definitions, examples, and a difficulty score. This allows the language learner to study words that are of most interest and importance to them.

The user has the option to either select one of the existing topic categories from the drop down menu or

create a new topic by entering a new topic name in the appropriate field. When the user clicks the “Add Word” button, *Acquire* adds the word, definitions, examples, and difficulty, as well as the date of entry into the Vocabulary Database. This information is added into the selected topic area or, in the case that a new topic has been created, to the bottom of the database, labeled with the new topic.

2. Quiz Setup

By clicking the “Let’s Learn” button, the user initiates the study session and can begin customizing their study session, as shown to the right in Figure 3.

From the drop down list, the language learner can choose either to study vocabulary from the database by topic, review date, or difficulty, or to study a random set of vocabularies.

The options to study by date or difficulty allows the user to optimize their language study. In both cases, the user must input the number of words they’d like to study, shown below in Figure 4. If the user chooses to study 10 words and elects to study by difficulty, *Acquire* will search the entire database of words and find the 10 most difficult words based on the user’s rating. Likewise, if the language learner were to select “Date Reviewed,” then the program would search the database and find the 10 words that have not been studied in the longest period of time.

Figure 3. The user can elect to study by Topic, Date, Difficulty, or Randomized

Vocabulary Study Session - Set Up

Review words by:

How many words would you like to review?

Review by definition or vocabulary?
☒ Definition
☐ Vocabulary

Let's Review!

Figure 4. The user can select the number of words to study and elect to see either the definition or the word first

Vocabulary Study Session - Set Up

Review words by:

Select topic:

☒ Study all words in selected Topic
☐ Study custom number of words

How many words would you like to review?

Review by definition or vocabulary?
☒ Definition
☐ Vocabulary

Let's Review!

Figure 5. Setup form for studying by topic

There are only 24 vocabularies under the 'Smoking in China' topic. Therefore you will study all 24 words.

OK

Figure 6. If studying by topic, the user can only study as many words as are in that topic

The default number of words for review is 10, but this can be adjusted according to the user's needs.

In the bottom left corner of the form, the user can select either the "Definition" option button or the "Vocabulary" option button. During the review session, these buttons control whether the language learner first sees the vocabulary, and consequently must recall the definition, or first see the definition and recall the vocabulary word. When learning a new language, it is important to be able to review both ways.

The form in Figure 4 is also the form that the language learner will use if they elect to study a random selection of words. They still must select the number of words to study, but *Acquire* chooses the words at random, with no regard to topic, difficulty, or date last studied.

Lastly, if the user elects to study vocabulary by topic, they have one more option: either they can study a custom number of words or they can study all of the words in their selected topic (see Figure 5). In the event that the user opts to study a custom number of words and they enter in a value that is greater than the number of words in that topic, *Acquire* informs them that that is the case, and that they will simply study all of the words in their selected topic, as shown in Figure 6.

3. Vocabulary Quiz

Once the user is satisfied with their quiz setup, he or she presses the blue “Let’s Review!” button to begin the quiz. The vocabulary quiz appears next and displays the first quiz item (either the definition or vocabulary word, depending on the user’s selection during quiz setup), along with its accompanying difficulty and the date it was last reviewed. The language learner can view that word’s definition, examples of how it is used, and its English equivalent by pressing the four “Vocabulary,” “Example,” “Definition,” and “English” buttons along the bottom of the form as seen in Figure 7.

The figure displays three screenshots of the 'Acquire - Vocab Quiz' interface, each showing a different view of the quiz item. All three screens share a common layout with a blue background and a globe icon on the left.

- Top Left Screenshot (Vocabulary View):** The title is 'Acquire - Vocab Quiz'. Below it is 'New Year'. The main text is '연말연시' (Year-end party). The difficulty is set to 3. The date last reviewed is 12/3/2014. At the bottom, there are five buttons: 'Vocabulary' (highlighted), 'Example', 'Definition', 'English', and 'Next'. A 'Finish' button is at the bottom center.
- Top Right Screenshot (Example & Usage View):** The title is 'Acquire - Vocab Quiz'. Below it is 'New Year'. The main text is '올해 연말연시에는 친구들을 만나는 것을 자제하고 가족과 함께 보내야겠다.' (This year, I should refrain from meeting friends at year-end parties and spend time with family). The difficulty is set to 3. The date last reviewed is 12/3/2014. At the bottom, there are five buttons: 'Vocabulary', 'Example' (highlighted), 'Definition', 'English', and 'Next'. A 'Finish' button is at the bottom center.
- Bottom Screenshot (English Definition View):** The title is 'Acquire - Vocab Quiz'. Below it is 'New Year'. The main text is 'Years end and years beginning'. The difficulty is set to 3. The date last reviewed is 12/3/2014. At the bottom, there are five buttons: 'Vocabulary', 'Example', 'Definition', 'English' (highlighted), and 'Next'. A 'Finish' button is at the bottom center.

Figure 5. Quiz forms showing vocabulary, examples and usage, and English definition

During the study session, the difficulty of each word can be changed based on the user’s ranking by directly selecting the “Difficulty” field and adjusting the number there. When the “Next” button is clicked, the next word or definition will appear. The user may cycle through the list of words as many times as is needed, as *Acquire* will simply loop back to the beginning of the vocabulary list when the end is reached. Additionally, when the user clicks “Next,” the “Date Last Reviewed” is updated along with the “Difficulty” (if it has been modified) in the vocabulary database.

When the study session is complete and the user clicks the “Finish” button at the bottom of the quiz form, *Acquire* sends an email containing all of the words and definitions from that study session to the user’s email address so that he or she can study those words throughout the day on their smart device. The third and

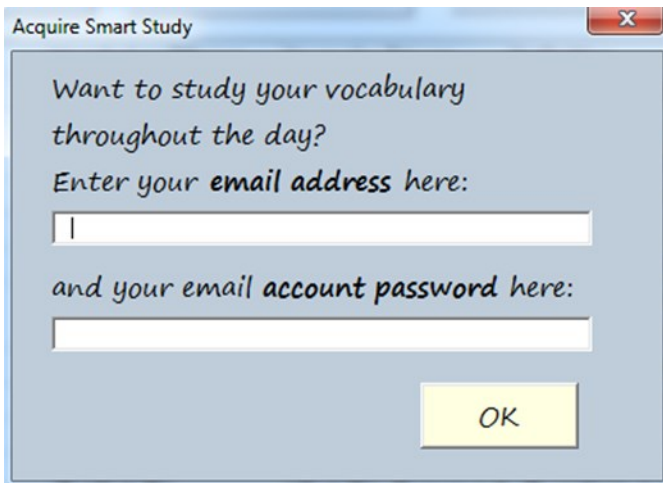


Figure 8. The Smart Study function of Acquire allows the language learner to take their vocabulary quiz with them on their smart device

final button at the top of the Vocabulary Database, “Smart Study,” allows the user to input his or her email address and email account password as shown in Figure 8.

Challenges and Lessons Learned

Creating the *Acquire* vocabulary program was a fun and challenging task. Admittedly, when I began this project my vision for the end product was somewhat different than it has turned out. The project has evolved along the way, and is now to the point where it contains *almost* everything that I would want in a vocabulary study tool. The most consistently challenging hurdle I faced was using code to interface with the Korean text. While I was able to manage loading the Korean text into arrays, and manipulated the Korean text while in those arrays, the computer was unable to take the Korean text and then interface with the internet. This meant that I was unable to use VBA to take a string of Korean text (which it simply can’t recognize) and have it search the web for definitions, pronunciation, etc. This was again an issue while trying to send an email to the program user; VBA couldn’t recognize the Korean text and the email would show up in my inbox as a bunch of ‘?’s. However, by turning the quiz worksheet into a PDF first, and then sending the PDF as an attachment, I was able to engineer my way around that problem, and give the language learner the opportunity to carry their study words throughout the day on the smart phone for easy access and study.

A valuable lesson I have learned is to always expect the unexpected! There will undoubtedly be unforeseen road blocks along the way that take extra man hours and brain power to figure out. So while undertaking a major project like this, it is important to start early, work hard consistently, and collaborate with others (in this case the professor and TA’s).

In conclusion, this has been an enjoyable and challenging project to undertake. What’s more, I’m excited about implementing the *Acquire* vocabulary study program into my own language learning, and the VBA skills I have acquired into my upcoming career.