

A Case for the Use of Spaced Repetition Systems for Vocabulary Acquisition and Review

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Abstract

This paper discusses the use of SRS as a supplement to EFL teaching and learning in Japan. Principally, a focus will be given to discussing why vocabulary learning is essential, defining spaced repetition and spaced repetition software programs, discussing their usefulness in vocabulary acquisition and review, presenting challenges to using spaced repetition systems in the traditional classroom setting, and providing potential methods to overcome these challenges.

Key Words: SRS
Spaced Repetition
EFL
Vocabulary Acquisition

1. Introduction

Since 2014, the Ministry of Education, Culture, Sports, Science and Technology, in response to globalization, has been working to reform English education in Japan. While this has led to students beginning their English education earlier and a mandate to focus on balancing the four skills (reading, writing, speaking, and listening), there has been little done to address the problem of individual students' vocabulary size. Spaced repetition systems can help to address the issue of vocabulary size and retention.

2. Why Focus on Vocabulary?

It is often stated, without grammar one can't say much, but without vocabulary, one can't say anything. The prevailing myth of English language learning and teaching in Japan, however, is that grammar is the most essential element of language ability. This has been proven to be false.¹ Many linguists have found that having an adequate vocabulary is the most important part of an individual's language ability. Some studies have found that vocabulary is often the best way to predict whether one will be able to comprehend written text while numerous studies have found a correlation between vocabulary size and speaking ability.^{2,3,4,5}

In Japan in particular, vocabulary size presents a unique problem. While English is an essential part of education in Japan, the vocabulary mandates and texts being used to teach are often inadequate. It was found that the Ministry of Education deemed only 507 English words to be essential for junior high school students.⁶ Hideki Matsuo also found that while high school level textbooks and university entrance examinations both averaged around the same vocabulary size (3000 words), only little over 50% of the words taught in high school textbooks overlapped with those presented on national and public university entrance examinations.⁷ These studies show that vocabulary is not being properly dealt with in EFL classrooms in Japan.

3. Spaced Repetition Systems

Spaced repetition is a process of learning and review. When you use spaced repetition, you increase the amount of time between each successive review of

material. One of the most common methods of spaced repetition is doubling the amount of time between each review (1 day, 2 days, 4 days, etc.). If you are unable to recall the subject of your review, you would shorten the time between reviews back to 1 day.

Spaced repetition makes use of the psychological concept of the spacing effect. What is now known as the spacing effect was first theorized by psychologist Hermann Ebbinghaus in his 1885 book *Memory: A Contribution to Experimental Psychology*. He found that learning and, most importantly, retention of new information was greater when it took place over a longer time period. For example, a person would be able to retain more knowledge if they read a book over one week than if they read the entire book in one night. This concept was taken a step further in Jost's "Law of Forgetting" which posits that a new repetition of information has more value than an older one.⁸ In other words, frequent repetition creates longer lasting memories. This is the basis upon which spaced repetition is built.

The simplest way to use spaced repetition is by using a set of organized flashcards in a box. The cards should be organized into different sections based on difficulty. One would review the most difficult cards more often and the easier cards less often. Once a level of proficiency is reached with the difficult cards, they would be placed into an easier section and reviewed less often. This is, however, a labor heavy task in the information age and thus spaced repetition software or SRS programs have become popular.

SRS Programs are most commonly flashcard programs such as Anki, Quizlet, and Mnemosyne, on a computer or smartphone that use an algorithm to predict the optimal length of time between reviews based on how long it took to the user to recall the information or how difficult the user states the information was.

4. Usefulness for Language Learning

It can be said that the greatest barrier to language acquisition and fluency is vocabulary level and retention. This barrier is particularly daunting for EFL students in Japan as the amount of vocabulary they are exposed to in daily life is quite limited. While a holistic approach to language learning is of course necessary for fluency in the areas of reading, writing, listening,

and speaking and arguments have been made that deliberate teaching of the most common English words is necessary at the beginning of language learning, there are undeniable benefits to the use of SRS for language learners.⁹

SRS applications are a type of CALL (Computer Assisted Language Learning) or MALL (Mobile Assisted Language Learning). Numerous studies have shown the benefits of using CALL/MALL to aid in vocabulary acquisition.^{10 11} SRS has proven to be particularly useful. A 2011 study of university ESL (English as a Second Language) students in the United States using the SRS program Anki were able to improve their scores on vocabulary tests. In addition to making use of spaced repetition, SRS applications also provide students with a customizable, learning tool. They allow students to study anytime and anywhere while focusing only on what they need or want to learn. If students are able to study via computer or smartphone (objects that they are likely to use daily) they will be more likely to study more often. SRS increases the chance of daily exposure to the target language. This is perhaps the reason for students' positive attitudes towards SRS applications and CALL/MALL in general as a method of language learning.^{10 12 13}

Additionally, it is generally accepted that the human brain can only learn and retain 5-9 new things per day.¹⁴ As such, vocabulary textbooks and lists are often ineffective for learning new vocabulary as they often provide an overwhelming amount of words on one page. This kind of information overload often has a negative effect on language learners and can actually lower how much information they can learn and retain each day. SRS applications prevent information overload by automatically limiting the amount that students see every day.

These two benefits are especially helpful for students who must learn set amount of words over a period of time to prepare for examinations such as the EIKEN or TOEFL.

5. Challenges to Using SRS

One major challenge to using SRS is access to technology. Even though 70.6% of students in Japan own a smartphone, in a traditional school setting, the use of smartphones is forbidden.¹⁵ Even in classrooms that provide students with their own computers, it

is often forbidden for students to install their own programs. Because of this, students must use SRS on their own outside of school. This makes it more difficult for teachers to provide assistance if students have trouble using the program. It also makes it almost impossible for teachers to create and provide students with premade materials for use in their SRS programs.

Another obstacle is the highly customizable nature of these programs. These programs allow students to progress through their study materials at their own pace. Because of this, providing uniform oversight to a large group of students would be almost impossible.

The largest obstacle, however, is the students themselves. Like every study material and study method, SRS is reliant upon students taking the initiative to use it on a regular basis. As these programs are inefficient if they are only used sparingly, students would have to take it upon themselves to use the program in a regimented manner.

6. Possible Solutions

To combat the challenge of technological limitations, a web-based program could be used. Web-based programs can be accessed by any internet-connected device and, as such, allow for freedom of use. Information is stored and backed up online so users are not completely reliant upon any particular device to access their study material. Anki SRS is a program available across every major platform with apps for smartphone use, a desktop app for Macintosh and Windows systems, and a web-based application that can be accessed via any web browser.

To provide students with a more uniform experience with SRS, premade lists of vocabulary could be distributed to each student at regular intervals. Instructors could give suggested study times and deadlines for completing a list of vocabulary while students study at their own pace.

Finally, instructors can provide a given amount of class time for students to review materials using SRS. While it remains impossible to ensure that students will use the applications regularly outside of class, dedicating 5 minutes to study during class will guarantee that they are reviewing regularly.

7. Conclusion

As technology continues to advance, the necessity of digital learning tools becomes even more apparent. The use of SRS on a wide scale could prove beneficial in English classrooms as it would serve to create a more structured framework for vocabulary review while also embracing the use of technology for language learning. Because SRS applications boast many features such as attaching audio files and pictures, it is possible to use them for any level of language learning. Use of SRS in English classrooms should be piloted to test their effectiveness and seek out further complications with their use.

8. References

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この論文では、日本で EFL（外国語としての英語）の教育と学習の補足として SRS（間隔反復ソフトウェアプログラム）を使用する方法について説明します。主に、語彙学習が不可欠である理由を説明し、間隔反復と間隔反復ソフトウェアプログラムを定義し、語彙の取得と復習の有用性を議論し、従来の教室環境で間隔を空けた繰り返しシステムを使用する課題を提示し、これらの課題を克服する。