

Using Mnemonics in Vocabulary Tests

Daniel Idoine-Shirai
Fukuoka Education Center (Fukuoka, Japan)
didoine {at} yahoo [dot] com

Abstract

The Grammar Translation style of teaching English common in high schools in Japan and other Asian countries requires students to learn a large vocabulary for regular class tests and in preparation for university entrance examinations. This paper introduces the use of mnemonics as a possible method to improve high school vocabulary test scores and finishes with some recommendations for conducting tests in higher education.

Introduction

An Indian man, Mahaveer Jain, spent 10 months memorizing every word of the Oxford Advanced Learners Dictionary's 1,500 pages including the sequence and page number of each entry. The man's teacher, Roy Chowdhury, claims that most people can improve their memories through specific techniques (Asia Times Online). High school students only need to learn a fraction of the amount memorized by Jain, so a similar technique should also improve their test scores.

Class Vocabulary Requirements

The Japanese Ministry of Education Lower & Upper Secondary School Course of Study for Foreign Languages gives a recommendation for a vocabulary of up to 900 words for Junior High School students, and up to 1,800 words for Senior High School students (See [References](#) for a link.).

Senior High School teachers are recommended to teach vocabulary "suitable for the achievement of the objectives" of the given course of study. Students participating in reading or writing courses may be asked to learn words in excess of the recommendation in order to satisfy the needs of the course. Therefore, vocabulary taught for specific objectives may not be re-encountered again once the objectives of the current study are achieved. Such demands of new lexical input leads to very little recycling from lesson to lesson.

Vocabulary Testing

If the Japanese Ministry's vocabulary quotas are averaged out over 3 years, students would need to learn 8 and 16 new words for junior and senior high schools respectively in every week of tuition. The standard way to satisfy this requirement is via regular class tests. Vocabulary lists are expected to be learnt up to 1 week after being received and are often derived from unstructured lists (Prator & Celce-Murcia, 1979). The majority of tests are based only on student knowledge and recall which is ineffective for assessing actual English ability and future needs.

Students are explicitly told the test words in advance and know when they will be tested. Consequently, even weaker students are able to cram most of the words into short term memory up until the exam starts. Students may be seen cramming as the lesson begins and formal greetings are conducted. Is this really effective for students and teachers? Are the students going to remember enough of these words when they get to university entrance exams?

Work by Ebbinghaus (1885) highlighted that nonsense syllables were lost from memory in his "forgetting curve" study (See [References](#) for a link.). The majority of the "words" were lost within a short time and after 1 week only 25% remained. For many low-level students, English learning involves many nonsense words and syllables, so would their memory degrade in the

same way? And if so, can study techniques, like mnemonics, aid in learning and reducing the memory degradation?

Mnemonics

Mnemonics in foreign language acquisition appears to have fallen out of favour with current interests in research. The use of mnemonics (memory improvement techniques) in language learning received some interest in research over 20 years ago but it is not a modern art. One technique taken from its originators is known as the Roman Room whilst the word "Mnemonic" itself derives from the ancient Greek mnemonikos and is related to the Goddess of memory, Mnemosyne, so it should not be surprising that the best Greek orators could recite speeches several hours long without forgetting their lines.

These days, young learners commonly use memory techniques to remember vocabulary in their L1, e.g. in remembering the number of days in each month ("thirty days hath September, April, June, and November"), or the order of musical notes on a stave ("Every Good Boy Deserves Favors"). Mnemonic techniques are used in Japan too. The goroawase system uses the Japanese pronunciation of numbers to create syllables with a different meaning, and can be seen in many company telephone number jingles.

Elementary EFL Teachers commonly use learning tools that behave as mnemonics, such as; songs, jazz chants, flashcards, drills, and language games which could also be used for advanced students (Richard-Amato, 1988).

Intermediate and advanced students also gain benefits from jazz chants, music, and poetry. Students can be exposed to situations in which meaningful content can be dealt with on many different levels.

However, these non-Grammar Translation Method techniques are absent from high school classes, due in part to teachers only being comfortable with teaching the way they were originally taught (Cross J, 2005).

Mnemonic Techniques

Various simple techniques exist that can be utilized in L2 acquisition. The Keyword Method (Kasper, 1993) creates a phrase or scene of the L2 and its L1 counterpart in some form of wordplay. E.g. to remember the Japanese for pigeon ("hato") a student might picture a pigeon with a large "heart" on its chest. While being useful for learning random words in isolation, this technique does not cater well for learning a specific list of words. The Major System is used to remember an infinite number of items in a list by coding the numbers to letters which can be used to make words. Whilst it is more effective than other systems, it takes longer to master and not effective for mnemonic beginners.

The Peg Method

The Peg Method is relatively ease to learn, and is appropriate for numbered lists. The Peg Method works like the Keyword Method in that the target word is remembered by a picture or scene, but this is combined with a number key which aids the user in remembering the specific sequence of the words.

The Peg Method encodes each number in a list with a specific object based on its form or shape. The number 1 is often represented by a pen or pencil, 2 with a swan, and so on. Normally these objects are chosen by the learner in order to make the strongest personal connection. For standardization the most commonly used objects were used, as described by Buzan (1991) and are shown below.

The trick to remembering the vocabulary words (table below: right side) is to link them to the number key images (table below: left side) in as strong and vivid a scene as possible. It helps to use all of the senses including sounds, feelings, and smells in the image (to cater for different learning styles) and the crazier the scene, the more likely it will be remembered. Positive ideas work better. For example:

1	Pen	Across
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2	Swan	Movement
3	Heart/chest	Issue
4	Yacht	Courage
5	Hook	Entrance
6	Elephant's trunk	Monster
7	Nose	Responsible
8	Fat person	Hardship
9	Balloon	Shocking
10	A hole (as in golf)	Sandwich

To learn the word "across", we need to link it with a pen (as it is the first word of the list). We might imagine a huge, elegant quill pen drawing a large "cross" on the golden gate bridge, with a sea air smell, and sound of seagulls.

As the students are learning a foreign language we can incorporate elements of L1 and L2. For "responsible", a scene of a squirrel ("risu" in Japanese), wearing a Groucho Marx nose (the number 7), and smelling a bottle of Japanese sauce ("ponzu"-ask the students to smell it too, in their minds only, of course); thus incorporating some elements of the word "risu"- "ponzu"- "ble" from the students L1.

A scene that represents the meaning of the word ("shocking": a balloon giving a static "shock" to a "king") is desirable but not essential. The mnemonic is simply a key to remembering the word, not necessarily the actual word itself.

For numbers over 10, the same images apply as above but the 10s and 100s are encoded with an extra standard image in the key. For example, from 11 to 20 every image should be in a block of ice, on a cloud, colored purple etc.

If beginners are unable to think of their own mnemonic scenes by themselves, the teacher can provide pictures to help. By using a computer art program (like Photoshop) and an image search engine, like Google, you can make memorable color images in a very short time. Beginners may take some time to create mental pictures that incorporate L1 and L2 but gain confidence and speed with practice.

Procedure Overview

Junior and Senior High School teachers attending a teacher training program in Fukuoka Prefecture were involved along with over 300 of their students. All of the teachers were introduced to the Peg method described above, and given an opportunity to practice it for themselves. Teachers were then given the task of teaching students as usual (a control group), or with the use of the Peg Method. For ease of teaching the teachers were provided with a picture of a mnemonic scene for each word to help in visualization.

As mentioned above, the Peg Method uses a specific order in the encoding of the words into memory. One of the goals was to observe whether this method is effective when the words are then re-encountered out of sequence in a test. Both the mnemonic group and control group were further split into two. The first sub-group were given the test words in exactly the same order as that received during vocabulary instruction; the second sub-group were given the tests in random order for both tests.

- Students were all given the same 10 words.
- The students were tested as normal.
- The teachers waited one week.
- The test was handed out again without any forewarning, as a surprise test.

- Both tests were received without marking for inputting in a database.

Mnemonic Effectiveness

The mnemonic groups scored statistically better on average in both the first (7.00 compared to 5.11) and second tests (4.24 compared to 2.31 in the control). Both groups showed lower scores in the second test compared to the first test.

The test showed that there was no difference between the mnemonic and control groups in regard to rate of vocabulary loss over time if the second test result is analysed as a proportion of the initial test result. So while mnemonics can give better scores, it is not effective in fighting the forgetting curve, at least in beginners to mnemonic techniques. Both mnemonic and control groups fared better than that predicted by Ebbinghaus (1885), however other early 20th century studies have shown that students can retain L2 vocabulary for many years.

There was no statistical difference between the random and non-random order tests indicating that students are able to recall words out of sequence using the Peg method and that it could be used in real world learning tests.

In both the mnemonic and control groups, there were a few students who achieved a higher score in the second test than the first. This is mostly due to errors made in the first test not being repeated in the second.

Students' tests were only marked correct where a perfect reproduction of the original vocabulary was made. Spelling mistakes, analogous words, or changes (L1 interference in spelling - as in "ue" for "we" of "weapon"; making a noun plural; changing a noun into a verb; putting a verb into a different tense, etc) did not receive a mark. This reflects the norm in high school practice but is not an accurate reflection of student ability.

In some cases, students made the same mistakes on both tests. More research needs to be conducted to see if the vocabulary was studied incorrectly; the same L1 interference re-occurred; the memory of a mistake produced during the first test overrode the information encoded in initial study; or other factors.

The results suggest that weekly tests, involving word lists and cramming, are not effective for long term study. Such tests can be misleading to teachers in deciding on the course of study and on the ability of their students. It could be more effective to give students diagnostic tests for future learning rather than spending time on such vocabulary achievement tests.

Recommendations

Whilst there is an argument over whether memorizing vocabulary really has a place in language learning at all, it is commonplace in Japanese schools and expanding one's memory is a skill that can be taken outside of the language classroom. If vocabulary tests continue to remain in high school teaching, here are some general recommendations:

- Some words were remembered better than others. This could be due to word length, strength of mnemonic, meaning, or how it relates to students ability and understanding of the L2. Check for patterns of mistakes and focus on them in your teaching.
- Students can benefit from receiving memorization techniques to improve test performance compared with rote memorization. With experience, a student could memorize all of their year's required vocabulary as one list instead of 10-word lists. In order to improve recall, mnemonics should be made by the individual.
- Vocabulary lists can be constructed using related words and topics that relate directly to the current course of study.
- Choose textbooks which recycle and build on vocabulary in each subsequent unit.
- Repeat tests of the same difficult vocabulary items mixed with newer material to help keep students retention levels high.
- Never make it obvious what will be in a test. Do surprise tests and use the results as a diagnostic for future study.
- Teachers could consider marking tests more leniently by accepting alternative words and setting wider boundaries for "correct" spelling. This may be appreciated by beginners level or older classes with low morale.

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