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Castledown

The Impact of Loanwords on the English–Japanese Version of Vocabulary Size Test

Ayako Aizawa
Rikkyo University, Japan
a.aizawa98@gmail.com

Abstract

The Vocabulary Size Test (VST) measures English learners' decontextualised receptive vocabulary knowledge of written English and has nine bilingual versions with multiple-choice options written in other languages. This study used the English–Japanese version of the VST to investigate the extent to which loanword items were answered correctly by Japanese first language (L1) university students compared to non-loanword items, and whether it was easier to answer these loanword items when the correct answer option was written in loanwords rather than Japanese-words. Paired t-tests showed a significant difference in correct response rates between the loanword and non-loanword items, and the loanword options and Japanese-word options, with a large effect size. The results suggest the relative ease of learning English loanwords compared to non-loanwords for L1 Japanese users, and the need to consider the use of loanwords in vocabulary tests to measure test-takers' vocabulary size more accurately.

Background

The Vocabulary Size Test

Vocabulary acquisition is one of the most crucial aspects of learning a second language (L2) (e.g., West, 1930), but it is seen as a complex and problematic feature of language learning (e.g., Gan et al., 2004). Nation (2008) suggested that one of the four roles

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of language teachers in developing learners' vocabulary is to assess their vocabulary knowledge. As a test cannot cover all aspects of vocabulary knowledge, both test-administrators and test-takers need to understand what the test measures to choose a suitable test and to correctly interpret the results. This study used the Vocabulary Size Test (VST, Nation & Beglar, 2007), which is a proficiency measure that determines the number of written English words known by test-takers in a decontextualised setting, from the first to the 14th most frequent 1,000 word families. The VST consists of 140 items selected from Nation's (2006) British National Corpus (BNC) word family lists. The target items are presented with decontextualised example sentences and test-takers choose the answer from the four options. A correct answer weighs 100 word families and the VST could measure vocabulary sizes of up to 14,000 word families.

As all the test items and answer options in the original VST are in English, it is referred to as the monolingual version. Versions with answer options in other languages are called bilingual versions and are currently available in nine languages. The monolingual version can be too challenging for less proficient test-takers due to the complex vocabulary and grammar used in the answer options. The bilingual version removes these problems by eliminating the need to decode the answer options from English to the test-taker's L1, which can lead to more accurate results than the monolingual version (Nguyen & Nation, 2011). Elgort (2013) highlighted that using the test-takers' L1 can reduce their anxiety, and McLean et al. (2016) found that bilingual versions can reduce response time. Empirical studies have been conducted on both monolingual (Beglar, 2010) and bilingual versions (e.g., Elgort, 2013), showing reliable results of the VST.

Loanwords in Japanese and in the Vocabulary Size Test

According to Tomoda (1999), one of the most common ways of categorising Japanese vocabulary is into four types: *wago* (words of Japanese origin), *kango* (words of Chinese origin), *gairaigo* (loanwords other than Chinese) and *konshugo* (mixed compounds of the first three types). In this study, *gairaigo* and *konshugo* (*wago*/*kango* + *gairaigo*) are referred to as loanwords, and *wago* and *kango* as Japanese-words. Japanese uses three scripts—*kanji*, *hiragana*, and *katakana*—and Irwin (2011) indicates that more than 99% of loanwords are written in *katakana*, making them easily distinguishable from Japanese-words. Definitions and terms for words that are orthographically or phonologically similar or share the same ancestry vary between studies (Helms-Park & Dronjic, 2012). In this paper, the terms loanwords and cognates are used interchangeably.

Allen (2019) used the Balanced Corpus of Contemporary Written Japanese (BCCWJ), where the loanwords are annotated, to identify the loanwords in Nation's (2006) BNC word frequency list. 40.6% of the loanwords appeared at least once in the corpus, and 16.3% appeared more than once per million words. This shows that L1 Japanese users already have considerable English vocabulary knowledge through Japanese and research has attested that loanwords promote vocabulary acquisition. Rogers et al. (2015) investigated the cognate effect on L1 Japanese university students when learning English vocabulary. Their study suggests the ease of learning loanwords and the possibility that loanwords can facilitate the vocabulary learning process

because participants have already established the form and meaning association of loanwords in their L1, even though they are not exactly equivalent. In another study with L1 Japanese participants, Allen (2022) investigated whether cognate status affects the inference of the meaning of unfamiliar vocabulary. The target cognates differed in the degree of difficulty of phonological decoding. He found that cognates helped participants to infer the meaning of words correctly, indicating the practicality of providing cognate strategy training in English classes to support lexical inference. These studies show that the introduction of loanwords can help learners' language learning process in a classroom where everyone has Japanese as their L1. However, since word meanings and pronunciations often change when borrowed into other languages (e.g., for Japanese, see Kay, 1995), word use in L1 does not guarantee that learners can use loanwords in English without difficulty.

Findings suggesting the ease of learning loanwords and the usefulness of using loanwords as a strategy for correctly inferring word meanings led to a discussion of the impact of loanwords items in vocabulary tests. Elgort (2013) found that her L1 Russian participants scored significantly higher on cognates than on non-cognates in both the monolingual and bilingual versions of the VST. As Russian and English use different scripts—the Cyrillic and Roman alphabets, respectively—similar results may be seen for L1 Japanese participants, as loanwords in Japanese are written in the *katakana* script rather than the Roman alphabet. She emphasises that cognates do not have to be omitted from vocabulary tests, but their proportion must reflect the reality of the test-taker's L1.

Regarding vocabulary tests conducted with L1 Japanese participants, Laufer and McLean (2016) administered three vocabulary tasks (form recall, meaning recall, and form recognition) to L1 Japanese and L1 Hebrew participants. Both groups of L1 users performed significantly better on loanwords than on non-loanwords in all tasks. However, the Japanese L1 participants benefited more from loanwords because the tasks contained more loanwords in Japanese (16.3%) than in Hebrew (7.5%). Their results indicate the importance of controlling for the number of loanwords in vocabulary tests, especially when the test-takers' L1s differ. Allen (2019) investigated the effect of loanwords using both monolingual and bilingual versions of the VST. He used the BCCWJ to identify loanwords, with 72 items (51.4%) appearing at least once in the corpus and 28 items (20.0%) appearing more than once per million words. The results showed that participants scored significantly higher on loanword items than on non-loanword items, and that loanword items were strong indicators of being answered correctly.

Research Questions

The research questions to be addressed in this study are as follows,

RQ1: To what extent are loanword items in the VST easier for L1 Japanese university students to answer correctly than non-loanword items?

RQ2: To what extent are loanword items with loanword options easier than Japanese-word options?

Method

The English–Japanese Version of the VST

The 140-item English–Japanese version of the VST was administered as a questionnaire. Each item was presented on a different page and participants were not allowed to return to previous items. McLean et al. (2014) showed that participants tend to skip questions when they encounter low frequency words, and Nation (2022) suggested mixing items of different frequency levels rather than presenting them in frequency order. In the present study, one word from each frequency band was presented, with ten cycles of 14 words from different frequency bands (1k, 2k, 3k,...14k; 1k, 2k, 3k,...; 1k, 2k, 3k,...14k...).

Loanword and Non-Loanword Items

To identify the loanwords, three L1 Japanese postgraduate students majoring in applied linguistics who were highly proficient English users at the CEFR C1 level were recruited as expert participants. They did not refer to any resources but judged whether the test items and the answer options written in *katakana* scripts were loanwords by intuition. Allen (2019) used a corpus, but to reflect how language users receive loanwords, this study used human judgements instead. As a result, they identified 47 out of 140 English test items (33.6%), and of the 47 loanword items, 15 items (31.9%) had the correct-answer options in Japanese. The agreement between the three participants was calculated using Fleiss' kappa and showed an intermediate agreement rate of k = .55, 95% CI [.46, .65].

Participants and Procedure

Participants were 134 L1 Japanese university students from three universities. Their average age was 20.8 years (SD = 1.6), and 109 identified themselves as female. The participants' majors varied, but 28.4% of them were majoring in English literature, linguistics, or media studies. It can be expected that they have more exposure to English compared to university students with other majors, and from the observed VST data, it can be said that the participants are advanced English users. Therefore, the results of this study cannot represent a wider range of L1 Japanese university students and needs to be interpreted with caution. The materials were distributed using Qualtrics. Participants read the participant information sheet and signed the consent form before answering the participant background questionnaire and the test.

Paired t-test was conducted to determine if there was a difference in participants' correct response rates between loanword and non-loanword items, and between loanword and Japanese-word correct-answer options.

Results and Discussion

Participants' mean score was 86.95 out of 140 (62.1%), indicating average vocabulary size of approximately 8,695 word families. The results indicated a high internal consistency of the English–Japanese version of the VST (α = .86). As Cronbach's

alpha assumes unidimensionality but cannot assess it (Al-Hoorie & Vitta, 2019), the 140 VST items were also subjected to a principal components analysis. There was a visual evidence of said unidimensionality via an observed elbow distribution where the eigenvalue of the strongest factor (17.46) was more than twice the eigenvalue of the next strongest factor (8.16).

Participants of this research had larger vocabulary size compared to previous studies which measured the vocabulary size of L1 Japanese university students using the VST (Bundgaard-Nielsen et al., 2011; McLean et al., 2014). A possible reason for the high scores could be due to the inflation of the scores caused by the format of the test. As Stewart (2014) argues, care must be taken when interpreting the vocabulary size estimated by the VST because passive recognition tests, such as the multiple-choice format, pose the risk of inflating scores through guessing. Although the participants in this study had high average scores, McLean et al. (2014) showed that even learners in the high-scoring group lacked knowledge of the most frequent items, highlighting the importance of focusing on vocabulary in the first three 1,000 frequency bands. This suggestion applies to the participants in this study, as they failed to answer 12.3% of the high frequency words correctly; the average score for the first three 1,000 frequency bands was 26.3 (SD = 3.1) out of 30 items.

Table 1 shows the results for Research Question 1. Paired t-test revealed a significant difference in correct response rates between the loanword items (M = 83.9%, SD = 10.6%) and the non-loanword items (M = 49.9%, SD = 10.7%), $t(125) = 26.0$, $p < .001$ with a large effect size ($r = .85$).

33.6% of the target items in the VST were indicated as loanwords used in Japanese. This figure is twice as higher than loanwords appearing more than once per million words in the BCCWJ (16.3%; Allen, 2019). The statistically significant difference in correct response rates between loanword and non-loanword items indicates the need to control the number of loanword items, and in line with Elgort (2013) and Laufer and McLean (2016), it suggests that the number needs to follow the authentic frequency of loanwords in the test-takers' L1.

Regarding Research Question 2, the correct answer options for the loanword items differed in two ways, as loanwords often have alternative Japanese-words. Fifteen items had the loanwords written in *katakana*, and the remaining 32 items had Japanese-words as the correct answer. For example, as shown on the next page, the correct answer for *accessory* was in the loanword アクセサリー [*akusesarii*], and the answer for *jump* was in the Japanese-word 跳ぶ [*tobu*].

Table 1 *Descriptive Statistics for Loanword Non-Loanword Items*

	Number of items	Range	*M*	*SD*
Loanword	47	23.4–100%	83.9%	10.6%
Non-loanword	93	24.7–81.7%	49.9%	10.1%

Note. n = 126 for both loanwords and non-loanwords.

accessory: They gave us some **accessories**.
a. ビザ (visa)
b. 法令 (regulation)
c. 選択肢 (choice)
d. アクセサリー (accessory)

jump: She tried to **jump**.
a. 浮かぶ (float)
b. 跳ぶ (jump)
c. 駐車する (park)
d. 走る (run)

(Translation and emphasis for the correct answer options are added.)

Table 2 *Descriptive Statistics for Loanword Items with Correct Answers in Loanwords and Japanese-Words*

	Number of items	Range	*M*	*SD*
Loan Words	15	20.0–100%	94.2%	13.7%
Japanese-Words	32	25.0–100%	79.7%	10.3%

Note. n = 126 for both loanwords and non-loanwords.

Table 2 shows a statistically significant difference in the correct response rates between loanword items with the correct answer option in loanwords (M = 94.2%, SD = 13.7%) and Japanese words (M = 79.7%, SD = 10.3%), $t(125) = 18.3$, $p < .001$, with a large effect size ($r = .85$). This result suggests that giving the correct answer in loanwords would make the test item significantly easier. The *katakana* words can be omitted from the answer options and changed to Japanese-words or short explanations as McLean et al. (2016) did in their edited version of the Japanese–English version of the VST.

Conclusion

This study investigated the extent to which loanword items were answered correctly compared to non-loanword items by L1 Japanese university students taking the English–Japanese version of the VST. Paired t-tests showed that the correct response rate for loanword items was significantly higher than that for non-loanword items, and that correct answers given in loanwords were easier to answer correctly than Japanese-words.

These results have at least two implications. First, it shows that English loanwords are easier to learn than non-loanwords for L1 Japanese users, as also shown in Rogers et al. (2015). However, learners may not be able to use the words appropriately despite their knowledge of the form and meaning associations, even if the meanings in English and Japanese are similar (Masson, 2013). Loanwords could be helpful in increasing learners' vocabulary, but language teachers cannot assume that learners will be able to use loanwords without instruction. Therefore, it is expected that sufficient class time will be allocated for explicit instruction of loanwords.

The second implication is for the development of vocabulary tests. The expert participants in this study identified 33.6% of the target items in the VST as loanwords used in Japanese. As the VST was not designed to measure the vocabulary size of learners with a particular L1, it does not reflect the percentage of loanwords in Japanese, leading to an overestimation of the vocabulary size of L1 Japanese test-takers. In line with Elgort (2013) and Laufer and McLean (2016), the number of loanwords in the test and target languages must be as close as possible to produce a sound measure of vocabulary knowledge. If several L1 groups are to take a vocabulary test, special care must be taken to ensure that a particular L1 group does not benefit significantly more than other L1 groups because of the proportion of loanwords in the test.

Although the results of this study can help to understand the importance of the use of loanwords in vocabulary tests, the identification of loanwords is complicated. As can be seen from the agreement rate between the three expert raters in this study (k = .55), what is considered a loanword differs from person to person, and this difference may be even greater across generations. One way of looking at loanwords from a neutral position is to use dictionaries of *katakana* words, but dictionaries do not include the latest words in the language, which can be problematic. It may be possible to recruit more raters, or have the raters discuss the loanwords with each other to come to a more convincing decision.

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