

An Effect of Setting Target Vocabulary to Learn in the Academic Reading and Writing Classroom

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Abstract

This study looked at the effect of assigning target vocabulary to learn on learners' receptive knowledge of high frequency vocabulary over an academic year. Whether university language teachers should set target vocabulary is of interest: it may be that students will learn high frequency vocabulary incidentally, or it may be necessary for teachers to ensure opportunities for deliberate vocabulary learning in the classroom. In this regard, this study adds to the literature on incidental vs. deliberate vocabulary learning. Vocabulary scores on the Vocabulary Levels Test are compared between two cohorts; for one cohort ($n = 71$), vocabulary learning was left up to the learners with no guidance from teachers. For the second cohort ($n = 88$), targeted vocabulary lists were provided for each reading text, and receptive knowledge was regularly tested throughout the academic year. Results showed that after 30 weeks of study, knowledge of high frequency vocabulary was better for the second cohort than the first, suggesting that targeting and testing vocabulary has a more positive outcome on learning than leaving students to direct their own vocabulary learning. The author recommends that teachers consider identifying vocabulary for their students to learn, and encourage revision with regular testing.

One consideration for teachers in a university setting is their role in language learners' vocabulary learning. One approach is to leave the selection of words to learn up to the individual students. Because each student will have a unique L2 lexicon, this approach allows learners to direct their own learning. As young adults, university students may well have their own preferred method in place for choosing and learning vocabulary. An alternative approach would be for teachers to select target vocabulary to learn, based on their learners' current vocabulary level. Teachers can encourage revision of this target vocabulary through regular in-class testing. While such a systematic approach is teacher directed, it can also foster independent learning by introducing students to the tools they need to optimise their vocabulary learning.

The study presented here investigated the effect of these two different approaches to vocabulary learning by comparing vocabulary test scores of two cohorts. The aim of the study was to determine which approach would yield better gains in vocabulary knowledge for low intermediate learners of English over the course of an academic year. It is important for teachers to know which is the more effective approach because vocabulary knowledge is a crucial aspect of second language learning (Horst, 2013; Nation, 2001, 2008). For example, vocabulary knowledge correlates with reading comprehension (Carver, 1994). As university students need to read a lot of content material, it is important to develop their word knowledge to cope with academic reading demands. Therefore, finding an optimal approach to vocabulary learning in the university classroom plays a vital part in learners' language development and academic experience.

Approaches to Vocabulary Learning

A teaching approach that leaves students to direct their own vocabulary learning may be drawing on communicative language learning methodology, which became popular in the 1980s. Communicative learning approaches emphasise language learning through meaningful contexts. One well-known proponent of learning through context is Stephen Krashen; according to his acquisition-learning hypothesis (1989), deliberate learning of language forms does not lead to acquisition of linguistic knowledge. His claim is that only learning focused on meaning, not form, leads to implicit, or acquired, knowledge. Conversely, focusing on form leads to explicit, or learned, knowledge and therefore, is not readily available for use by the learner. Thus, according to his theory, vocabulary is best learned through context, and not through decontextualized methods, such as word cards. Teachers may be drawing on this theory as support for having their learners learn vocabulary through context, believing that through exposure to language in texts and discussions, learners will enhance their vocabulary knowledge.

More recently, however, it has been argued that learning vocabulary through context is insufficient and should be supplemented by deliberate learning (e.g. Cobb, 2007; Hulstijn, 2001; Nation, 2007, 2008). One robust study which investigated the effects of deliberate learning on vocabulary acquisition is Elgort (2011). Her study investigated whether deliberate learning triggers the acquisition of vocabulary items in a second language. She defines an acquired vocabulary item as one with established representations in the mental lexicon, representations which can be accessed in a fluent way (p. 369). Participants ($N = 48$) learned English pseudowords from word cards (i.e. out of context and in a deliberate way). After one week, they were tested by listening to definitions and having to write down the target items. Three main priming experiments followed (form, masked and semantic priming) to test the acquisition of formal-lexical representations, and lexical-semantic representations. Results from the priming tests enabled Elgort (2011) to confidently conclude that deliberate learning does indeed lead to vocabulary acquisition. Therefore, it would seem that deliberate learning is an efficient and effective way for second language learners to enhance their vocabulary knowledge, and should supplement usage-based learning.

If deliberate learning of vocabulary is a part of second language acquisition, then teachers may have an important role to play. Nation (2008) suggests that the role of teachers is to plan which vocabulary should be targeted for learning, train learners in strategy use, and test learners to determine where they are in their vocabulary development. He also lists teaching of vocabulary, though he remarks that this is least important: "Deliberate learning is more much effective than deliberate teaching" (Nation, 2008, p. 7). As for which vocabulary should be targeted, Nation explains that high frequency words are the most important to learn, as they are used most commonly in both formal and informal language, both written and spoken. Furthermore, knowing the first 2,000 most common words will enable a learner to understand approximately 80% of the words in any text; this vocabulary knowledge also allows learners to understand defining language used in dictionaries. Academic vocabulary is also important for learners in university settings. Websites like the Oxford Learner Word Lists are simple to use: teachers and students can quickly look up individual words on the 3,000, 5,000 or academic phrasal lists (depending on the learning goals) and check if the word is frequent and therefore worth learning ("Oxford Learner's Word Lists," 2020). As for testing students to determine their current levels, the Vocabulary Levels Test (Schmitt, Schmitt, & Clapham, 2001) is user-friendly and straightforward enough for teachers to administer and interpret the results quickly. Teachers can explain the results of the test to students, so they are aware of their current vocabulary knowledge and can become responsible for their own learning goals, using the word lists mentioned above.

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In sum, the study described here compares two approaches to vocabulary learning in a university reading and writing classroom. For the purpose of the study, learners' vocabulary levels were pre- and post-tested in both approaches. In the first approach, teachers do not select target vocabulary for their learners, and leave the learning of vocabulary up to the students. In the second approach, teachers determine target vocabulary for learning based on the learners' vocabulary levels test results. Students are regularly tested on their receptive knowledge of the target vocabulary through in class quizzes. The research question is: What effect is seen on vocabulary gains in an academic reading and writing course in two conditions: when students are left to direct their own vocabulary learning, and when teachers select target vocabulary to learn and encourage revision through regular testing?

Method

Participants

The participants were first-year university Japanese learners of English. Their proficiency levels, as indicated by their TOEFL scores (350-450), placed them in the low-intermediate stream. Data was collected from cohorts from two academic years, 2018 and 2019. In AY2018, the cohort size was 124 students. However, data from 53 students were removed from the analysis because participants missed either pre- or post-testing, or a teacher failed to collect their post-test scores; this left a sample size of 71. In AY2019, the cohort size was smaller, 97 students; data for nine students was removed, due to missing scores, leaving a sample size of 88.

Testing Instruments

Students' receptive knowledge of high frequency vocabulary was tested using the Vocabulary Levels Test (VLT) (Schmitt et al., 2001) at the 2,000 (2K) and 3,000 (3K) levels. Version 2 of the test was used, for which Schmitt et al. (2001) report reliability figures of .922.

Procedure

Participants in both AY2018 and AY2019 were tested with the VLT at the beginning of the academic year in early April (pre-test) and again at the end of the year in late February (post-test) to compare the effects of the two approaches to vocabulary learning after a 30-week term.

In AY2018, the first approach to vocabulary learning was followed: no vocabulary was targeted for learning or testing. Students were left to decide which vocabulary to study, if any. They were not directly tested on any of the vocabulary in the reading texts. In AY2019, the second approach of targeting and testing vocabulary was followed. First, vocabulary profiles of the reading texts from the course were created using the VP Compleat program (Cobb, n.d.). Based on the vocabulary testing, vocabulary items were targeted for learning from the 2K, 3K and AWL (academic word lists) levels. These levels were selected because VTL pre-testing indicated that not all participants in the cohort had adequate knowledge of the words at these levels. Twenty words were selected from each reading text for a total of 100 words per 10-week term, and a grand total of 300 words for the academic year. On average, students were given one to two weeks to study each set of 20 target words; all of the target words appeared at least once in the corresponding reading text, though some words appeared twice or more in the same text. Participants were tested on ten of 20 target vocabulary items, selected by the classroom teachers, using a standardised vocabulary quiz format. For this quiz, students demonstrated their knowledge of each word by first listening

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to a dictation of the target items, then spelling the words, and then giving a short definition of the terms in English. In this way, phonological, orthographic and semantic knowledge of the items was tested. The vocabulary quizzes were counted toward the overall grade for the course, thus providing motivation for students to prepare for the quizzes.

Participants in both AY2018 and AY2019 were given vocabulary learning strategy training in word card use in a complementary extensive reading course in the first term of the academic year. They were encouraged to use word cards, either paper cards or on an app like Quizlet. Word card use was not mandatory in the reading and writing course for the AY2018 cohort, while it was mandatory for the AY2019 cohort.

Data analysis

Descriptive statistics were compiled for AY2018 and AY2019 cohorts for the 2K and 3K test results. To compare the effect of the two approaches to vocabulary teaching, a paired samples t-test was run to compare the gains at the 2K and 3K levels within each cohort. An independent samples t-test was also run to compare the gains at the 2K and 3K levels between the two cohorts.

Results

In order to compare the effects of the two approaches to vocabulary learning (i.e. student directed or teacher directed), descriptive statistics were compiled for each cohort. Table 1 shows the descriptive statistics for each cohort for the 2K and 3K levels in April (pre-test) and February (post-test). Recall that the AY2018 cohort had a student directed approach to vocabulary learning (i.e. no set vocabulary to learn) while the AY2019 cohort had a teacher directed approach (i.e. target vocabulary to learn with regularly testing as part of the course). The maximum score for each test is 30. A level is considered ‘known’ with a score of 27 or higher.

Table 1.

Descriptive Statistics: AY2018 and AY2019 2K and 3K test scores at pre and post testing

	2K band April		3K band April		2K band Feb.		3K band Feb.	
	2018	2019	2018	2019	2018	2019	2018	2019
Mean	25.63	25.41	21.01	19.81	26.79	26.86	21.13	22.99
Std. Deviation	4.68	3.72	5.95	5.40	3.45	3.33	6.57	4.42
Range	22	17	29	23	18	21	29	20
Minimum	8	13	0	6	12	9	0	10
Maximum	30	30	29	29	30	30	29	30

Note. AY2018 cohort $N = 71$; AY2019 cohort $N = 88$.

Visual analysis of data (i.e. histograms, boxplots) indicated there were outliers; the Shapiro-Wilk test of normality indicated the data was not normally distributed. (Equality of variance is assumed in paired samples testing). A non-parametric test was run to compare the

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vocabulary gains at each level for each cohort (the hypothesis being that pre-test scores are lower than post-test scores). For the AY2018 cohort (i.e. student direct vocabulary learning) at the 2K level, a Wilcoxon signed-ranks test indicated that the post-test (February) scores were statistically significantly higher than the pre-test (April) scores, $Z = 370.5$, $p < .001$, $r = .710$ (rank-biserial correlation), a large effect size. For the 3K level, a Wilcoxon signed-ranks test indicated that the post-test (February) scores were not statistically significantly higher than the pre-test (April) scores, $Z = 904.0$, $p = .306$, $r = .293$ (rank-biserial correlation), a small effect size.

Data for the AY2019 cohort was also not normally distributed (as indicated by visual examination of histograms, box plots, and tests of normality). For the 2K level, a Wilcoxon signed-ranks test indicated that post-test (February) scores were statistically significantly higher than the pre-test (April) scores, $Z = 365.5$, $p < .001$, $r = .813$ (rank-biserial correlation), a large effect size. For the 3K level, a Wilcoxon signed-ranks test indicated that post-test (February) scores were also statistically significantly higher than the pre-test (April) scores, $Z = 288.5$, $p < .001$, $r = .853$ (rank-biserial correlation), a large effect size.

Another analysis involved comparing the vocabulary gains between the two cohorts, and thus the two approaches to vocabulary learning. The data was first examined: the assumption of normality was violated as indicated by the Shapiro-Wilk test, though variances seemed to be equal as indicated by a non-significant Levene's test. A non-parametric alternative to an independent samples t-test was run. A Mann-Whitney U test indicated there was no statistically significant difference between the two cohorts' scores at the 2K level in April, $U = 3480$, $p = .215$, $r = 0.114$, a negligible effect size. A Mann-Whitney U test indicated there was no also statistically significant difference between the two cohorts' scores at the 3K level in April, $U = 3609$, $p = .093$, $r = 0.155$, a negligible effect size. Thus, in April, the vocabulary knowledge of the two cohorts was similar.

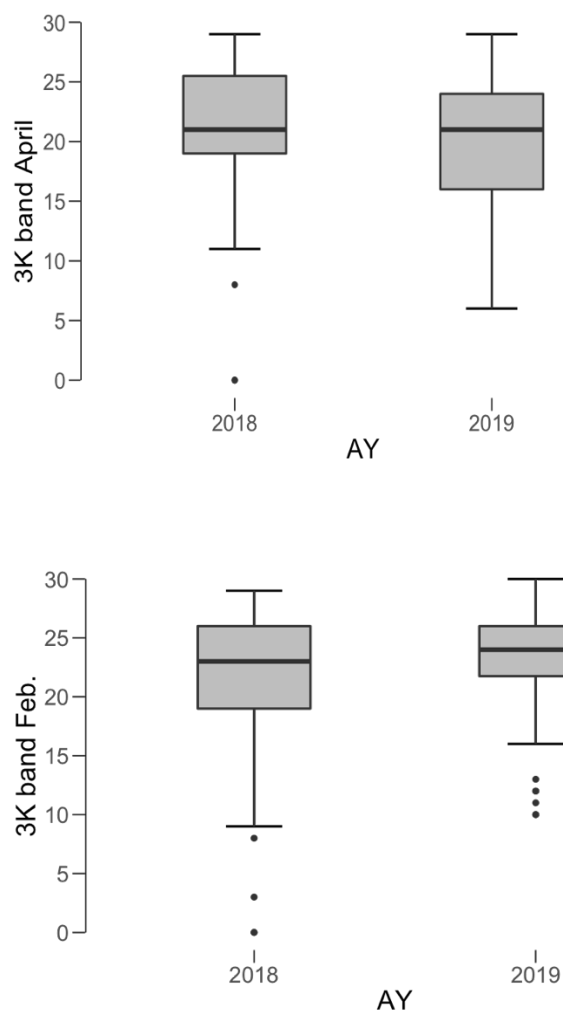
Comparing the two cohorts' scores in February, the data seemed to have unequal variances, as indicated by Levene's test and side-by-side boxplots (see Figure 1). For that reason, a Welch's t -test was run, which indicated for the 2K level, there was no statistically significant difference between the two cohort's scores, $t(147.6) = 0.138$, $p = .890$, $d = .022$, a negligible effect size. For the 3K band, Welch's t -test indicated the AY2019 cohort's scores were statistically significant higher than the AY2018 cohort's scores, $t(117.8) = 2.044$, $p = .043$, $d = .333$, a small effect size.

In order to better visualise the distribution of data for the two cohorts at the 3K level, side-by-side boxplots are presented for pre-test (April) and post-test (February) in Figure 1.

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Figure 1.

Boxplots comparing AY2018 and AY2019 cohorts scores at 3K level in April and February



Boxplots show all scores between the two ‘whiskers’, with a box showing the middle part of the data (from the first quartile to the third quartile); the median is indicated by the dark line in the box. The dots represent outliers in the data (i.e. scores beyond 1.5 times the box length). From the April comparison, the boxplots show that the two cohorts had very similar median scores, though there was more range in the AY2019 cohort, as well as more participants with lower scores, as seen in the third quartile. Variance seems to be roughly equal in the two cohorts. From the February boxplots, it can be seen that the AY2019 cohort ended the year with less range and variance, and a slightly higher median than the AY2018 cohort. There was considerable range in the AY2018 cohort in both April and February.

Discussion

The results show that when students are left to direct their own vocabulary learning, as the AY2018 cohort was, they were able to make statistically significant gains in their knowledge of 2K level vocabulary but not at the 3K level. As noted earlier, high frequency vocabulary (i.e. the first 3,000 words) is crucial for language learners. It provides high

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coverage of about 80% of reading texts and up to 90% of spoken language. High frequency vocabulary is also necessary to understand defining language in learner dictionaries. However, as the results in this study indicate, when students are left to decide which vocabulary to spend time learning, it seems they do not choose or focus on this crucial vocabulary. After one academic year, these low-intermediate learners did not have a solid knowledge of the 3K level ($M = 21.13$). This would make future study in an English medium environment difficult because an estimated knowledge of the first 5,000 words is needed.

In the condition when teachers selected target vocabulary to learn and encourage revision through regular in class testing, as was done with the AY2019 cohort, the results showed that participants made statistically significant gains at both the 2K and 3K levels. When comparing these gains with the AY2018 cohort, there was a statistically significant difference seen at the 3K level with a small effect size. This finding suggests that students will learn more high frequency vocabulary when such words are targeted for learning and regularly tested.

Even though both cohorts were exposed to the same reading texts and writing assignments, and had the same opportunities for discussion, vocabulary gains for the AY2019 cohort were greater than the AY2018 group. This suggests that high frequency words might not be learned incidentally but that some time needs to be spent on deliberate learning. Teachers can ensure this deliberate learning takes place by carefully selecting target words and testing regularly as part of the course.

There are several limitations to the study. First, there was a significant proportion (42.7%) of missing data from the AY2018 cohort, as one teacher declined to vocabulary test the students at the end of the academic year. This missing data may have rendered the sample non-representative. Second, students in both cohorts were enrolled in several English courses (i.e. 22 credit hours) over the academic year, and some choose to study abroad for six weeks during the summer holiday. It is unknown how these other learning opportunities contributed to their knowledge of high frequency vocabulary. Third, while use of word cards for vocabulary learning was obligatory for the AY2019 cohort, it is not known how much time the participants spent revising the target vocabulary. Students needed to show their teachers their word cards, but showing the cards had been made did not demonstrate the cards had been used, nor for how long.

Conclusion

Taken together, these findings suggest that when teachers select high frequency vocabulary for their learners to focus on, the gains are better than when students are left to learn vocabulary incidentally through context. This finding supports other literature that has found when students are not actively learning vocabulary or teachers do not encourage active learning, vocabulary growth plateaus (Laufer & Paribakht, 1998; Schmitt & Meara, 1997). This seems to be the case in this study with the AY2018 cohort, even though the students are considered to be highly motivated to learn.

These findings have important implications for the classroom. A teacher directed approach to vocabulary learning is advocated by Nation (2008). It is important for teachers to assist their learners in their vocabulary development by testing their current vocabulary levels at the beginning of the academic year. The test results should be explained to students so they are aware of where their gaps in knowledge lie, and that they have concrete learning goals for the year. There are several vocabulary levels tests freely available on lexutor.ca/tests (Cobb, n.d.). Based on the test results, teachers should select vocabulary to learn from the course reading texts. For example, if the vocabulary levels test results indicate that on average, most

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students do not know the 3K level, then words from that level should be targeted for learning. Words at the 3K level are more frequent in the language than words at the 4K level and above. That means students will encounter 3K words more often than lower frequency words. For that reason, these are important words to spend time learning. Students should also be aware of why certain words have been selected for learning (i.e. they are high frequency, appear several times in the text, or are technical vocabulary important to that particular text).

Another role for teachers is to provide motivation for learners to review target vocabulary by having regular vocabulary quizzes. A simple vocabulary test format that requires no preparation was described above: the teacher dictates ten words selected from a larger list, and the students demonstrate their knowledge by giving the correct spelling after hearing the words dictated, and writing a short definition (not an example sentence).

Acknowledgements

Thanks to the teachers in ARW Stream 4 in AY2019 who collected vocabulary levels data.

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