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Jay Tanaka

Patharaorn Patharakorn

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Sharing Vocabulary Size Test Scores with Students: What's the Impact on Motivation?

Jay Tanaka

University of Hawai'i at Mānoa, USA

E-mail: jaymt@hawaii.edu

Patharaorn Pathrakorn

University of Hawai'i at Mānoa, USA

E-mail: patharaorn@gmail.com

Abstract

This study investigates the impact of sharing research findings on lexical coverage and vocabulary size with L2 English students. This practical knowledge can be applied toward reading books and other materials. Research has suggested that knowing approximately 98% of the words in a text can lead to adequate reading comprehension (Hu & Nation, 2000). Such information, paired with knowledge of a student's own vocabulary size (Nation & Beglar, 2007), can potentially aid students in setting L2 vocabulary and reading goals. Ninety-nine university students in Thailand participated in this study. It utilizes a pretest-posttest design, with the sharing of research findings on lexical coverage and vocabulary size with students as the treatment. Surveys measuring motivation and attitudes toward studying L2 vocabulary were conducted before and

after the treatment. Results were analyzed using principal component analysis, revealing three clear components among 12 traits. A comparison of the mean scores between components in the pretest and posttest surveys revealed statistically significant differences for two of the components ($p=.038$ and $.002$). The changes in the scores from both components indicate improvements in motivation and attitudes toward studying L2 vocabulary.

Keywords: vocabulary size, vocabulary teaching, vocabulary learning, motivation

Introduction

Although it is the explicit goal of research in language pedagogy to impact educational practices, the gap between research and practice remains prominent. This study particularly focuses on research in vocabulary size (Nation and Beglar, 2007) and lexical coverage (Nation, 2006; Laufer and Ravenhorst-Kalovski, 2010; Hu and Nation, 2000) and how it can be applied in the L2 classroom. Lexical coverage research revolves around the percentage of known words in a text and its relationship to reading. It is encouraging that there are some studies focusing on the use of lexical coverage research findings toward selecting appropriate reading materials for students (Wan-a-rom, 2010); however, to our knowledge there are no studies providing empirical evidence on the result of sharing lexical coverage research findings *with* students. Information on L2 students' own vocabulary size, coupled with knowledge of how this relates to their ability to read, can help them to understand their own learning progress and relate that progress towards the practical goal of reading a certain type of book or other reading material. Research findings in lexical coverage and vocabulary size also provide valuable information about the process of language learning, and we argue that this information could be beneficial to share with students. If a student learns more about their own L2

learning process, there is potential for an improvement to their desire to study. This study investigates if sharing knowledge about lexical coverage and vocabulary size with L2 students has an impact on their motivation and attitudes toward studying vocabulary.

Lexical Coverage and Vocabulary Size

Second language reading proficiency is comprised of many different elements, but there is a particularly strong relationship between the ability to read and vocabulary knowledge. Research has shown that lexical coverage is strongly related with reading comprehension (Carver, 1994; Hirsh and Nation, 1992; Hu and Nation, 2000; Laufer, 1989; Laufer and Ravenhorst-Kalovski, 2010; Laufer and Sim, 1985). Knowing the words that appear most frequently in a text greatly increases the probability of adequate comprehension. But what is the minimum level of lexical coverage needed to adequately comprehend a reading? There is an ongoing discussion on the topic of a generalizable optimal coverage level (Nation, 2006; Schmitt et al., 2011; Laufer and Ravenhorst-Kalovski, 2010); however, the proposal from Hu and Nation (2000) of 98% coverage is a widely recognized estimation.

Nation (2006) took research findings on coverage in a practical direction by exploring the required vocabulary size needed to achieve adequate coverage for different genres and media. He analyzed the words in novels, newspapers, graded readers, and children's movies using word frequency levels from the British National Corpus (BNC). By starting from the most frequently occurring 1000 words and assessing coverage at each higher 1k word level, it is possible to approximate how many words a learner must know to have 98% coverage. Using the script of the movie *Shrek* as an example, a vocabulary of the most frequent 7000 word-families in the BNC, along with knowledge of proper nouns, will result in approximately 98% coverage. While it is true that 98% coverage cannot be an absolute predictor of comprehension, it is nevertheless a useful guiding tool for language teachers to choose appropriate reading materials. For

example, the usefulness of lexical coverage information in pedagogy can be observed within *extensive reading* (Day and Bamford, 1998). Many extensive reading programs use graded readers that come with vocabulary profile information. If a teacher has information about a student's vocabulary size, they can estimate what books will probably be suited for that student, based on the books' coverage of word family levels.

This is the most obvious use of research findings in lexical coverage, to guide teachers in making decisions about books and other teaching materials. However, this study investigates the notion that an L2 student's knowledge about their own vocabulary size paired with knowledge of the number of words needed to read different genres could have a meaningful impact on their motivation to study. Lexical coverage information is especially useful for students creating reading goals. If a student sets a goal to read a certain book, a lexical analysis of the book¹ (or genre) coupled with an analysis of the student's vocabulary size can provide the student with a clear vocabulary learning goal.

Motivation

In order to observe the impact of this knowledge on student motivation, this study must measure the motivation and attitudes of students before and after attaining that knowledge. With that goal in mind, however, there are some caveats that must be acknowledged for any attempts in measuring motivation. The term 'motivation' has become a label for something that is exceedingly abstract and complex (Dörnyei, 2003; Dörnyei and Ushioda, 2013; Dörnyei, 2010). The aspects of the human mind related to this concept can be categorized into *wants/desires*, *rational thought*, and *feelings/attitudes*. These categories are closely interrelated and the L2 research community has yet to agree on a framework to explain the connections between the various aspects related to motives. Dörnyei and Ushioda (2013) also caution against the

¹ Examples of free lexical analysis tools can be found at www.lex tutor.ca.

assumption that these relationships between aspects are linear in nature, meaning that a person's 'motivation' may be ever-fluctuating from moment to moment and that any factor influencing one's motivation can have both positive and negative effects in different circumstances. To illustrate, the *dynamic systems* perspective proposes that there are multiple motivational systems in the mind that are interlinked and change over time. This view contrasts with more traditional views of motivation that conceptualize a person's motivation as a unique set of trait-like attributes. In dynamic views, a measurement of one's motivational state would be more of a snap shot in time; traditional views would perceive a measurement outcome as a reflection of a more enduring psychological quality, ascribed as the person's traits or attributes.

The aim of the current study is to determine the existence or non-existence of changes in student motivation, and it is not principally concerned with understanding the nature of motivation or the nature of changes in motivation. Nevertheless, it is important to consider the complex and dynamic nature of motivation, particularly when attempting to draw implications from findings. Survey research in motivation is concerned with collecting data at specific points in time, gathering information on pieces of an exceedingly complex puzzle. By employing a survey to measure any changes in individual traits, this study provides evidence regarding the impact to motivation and attitudes regarding L2 vocabulary learning.

Objective of the Study

This study investigates if sharing information with L2 English students on lexical coverage, vocabulary size, and its application toward reading books and other materials has an impact on their motivation and attitudes toward studying English vocabulary. This study adopts a pretest-posttest design, utilizing a motivation survey to measure the impact of administering a vocabulary test, sharing the scores with students, and then sharing research findings that give meaning to those test scores.

We refer to these actions collectively as our treatment in the current study.

Method

Participants and Procedures

The study took place at a public university in the Issan region of Thailand. The participants in this study were undergraduate students at the university, from the faculties of agriculture, chemistry, medical science, and business. These students were all attending a two-month intensive English education program in the summer. The intensive English program teachers volunteered to provide 45-60 minutes of their class time during the first weeks and 10 minutes during the last weeks for data collection. At the beginning of the term, the teachers were given a handout explaining the concept of vocabulary size measurements and its application in the L2 classroom.

During the first week of classes, the students were asked to participate in the study by first taking a survey on motivation and attitudes regarding studying English vocabulary. Then, the students were given a handout in Thai (Appendix A) with information explaining the meaning of vocabulary size in terms of lexical coverage. After the students had read the handout, the teachers were instructed to explain the content briefly and answer any questions. Emphasis was placed on directing the students to read information on the handout and giving as little instruction as possible because it would create too much variation in the treatment between different classes. After this, the students took the Vocabulary Size Test (VST) (Nation and Beglar, 2007). At this point, 123 students took both the survey and the VST. After a period of 4-6 weeks², the students were informed of their individual vocabulary size scores, were asked to review the handout again, and took the same motivation survey again. Twenty-four of the students were not present for this second administration of the motivation survey. Therefore, the total

² Due to differences in class scheduling, the second survey took place within a two-week window.

number of complete responses for both the first (Pre-VST) and the second (Post-VST) administrations of the motivation survey came down to 99.

Instruments

Vocabulary Size Test. There are two data collection instruments that were translated and used for this study: a Thai version of the Vocabulary Size Test (Nation and Beglar, 2007) and a motivation survey. The VST was designed to measure written receptive vocabulary size in English. The test measures knowledge of form, form-meaning connection, and concept knowledge. The test does not measure productive vocabulary knowledge, nor does it test reading skill because although receptive vocabulary knowledge is an important factor of reading comprehension, the activity of reading encompasses a multitude of other factors which are not part of this test.

According to the framework for L2 vocabulary assessment presented by Read and Chapelle (2001), the VST is a discrete, selective, relatively context-independent vocabulary test featuring multiple choice items. Words are tested within a sentence, so the test is not purely context-independent; however, the sentences are simple non-defining sentences which provide minimal information as to the meaning of the word. Only single words (not multiword units) are tested, not including proper nouns, transparent compounds, marginal words, or abbreviations. Words for test items were selected according to frequency levels from the BNC. Fourteen 1000-word family frequency levels are each represented by 10 items in the test. The resulting 140 items are ordered from high frequency to low frequency words.

Regardless of the proficiency level, the test taker should not skip the difficult sections and attempt to answer items from all frequency levels. This is because the goal of the test is to measure total vocabulary size, and even low proficiency learners often know a few words from the more difficult low-frequency word sections near the end of the test (Nguyen and Nation, 2011). The total score, measuring known words from all frequency levels, is the only meaningful measure from the test. For the current study, the

VST instructions and multiple choice answers were translated into Thai and the students were informed to attempt to answer all 140 items. In addition, an additional option of "I don't know" was added to each test item to discourage random guessing³.

An analysis of VST scores from the 99 students indicated a range of beginner to intermediate-advanced proficiency students. The results showed a minimum vocabulary size of approximately 1700 words, a maximum of 7900 words, a mean of 4280 words and a standard deviation of 13.01 (1300 words). The distribution of scores shows that there is no concentration of students at any one proficiency level, and consequently that the results from the motivation survey represent a broad range of students in terms of proficiency.

Motivation Survey. A semantic differential (SD) scale, utilizing traits drawn from Christophel (1990), was used to measure students' motivation and attitudes toward studying L2 English vocabulary (Appendix B). The students were asked to answer the question: "How do you feel about studying English vocabulary?" by circling a number which represents the degree to which they feel over a series of 12 word phrases. The intention of this study is to assess if there was any change within the students' motivation or attitudes, and the survey achieves this efficiently by covering a broad array of traits in combination with short word phrases. The items include: *motivated*, *interested*, *involved*, *not stimulated*, *don't want to study*, *inspired*, *unchallenged*, *uninvigorated*, *unenthused*, *excited*, *aroused*, and *not fascinated*.

Motivation surveys in SD format are characterized by items featuring traits and their opposite counterparts, often separated by 7-point scales with each point equidistant from each other. This structure allows participants to select number points while visually assessing the distance from the right and left constructs.

³ This option is also present on an online version of the VST (my.vocabularysize.com), and we felt it would increase the accuracy of the results of this study.

The simple and intuitive nature of SD scales is useful in measuring psychological constructs that are difficult to verbalize (Snider, 1969). The simple nature of SD scale items also makes them comparatively easier to interpret and translate across contexts (ex. English to Thai) than items that feature long phrases or full sentences. Although the list of traits was originally written in English, to make sure that participants could understand the content of the survey, we presented the information bilingually in both Thai and English. The Thai translation was done by the second author, a native speaker of Thai, and checked by another colleague Thai speaker to ensure the accuracy of the translated text. To ensure that the students would take care in reading and answering each item, six of the items featured positively worded terms on the lower end of the scale (score = 1), and the other six featured positively worded terms on the higher end (score = 7). Caution for the students to take note of this feature in the survey is clearly communicated in the instructions of the survey, and the students were told to pay attention to those items by their instructors who administered the survey.

It should be noted that the Thai translation for Item 11 (Aroused) does not have the sexual connotation that could be linked to its original term in English. This makes Item 11 and Item 10 (Excited) semantically closer in their Thai version. In addition, although Item 12 (Fascinated) and Item 2 (Interested) share similar meanings in English and are differed only in the degree of intensity, this relationship between these two words does not exist in Thai. Thus, the translation for Item 12 had to be done through approximation and simile to capture the more extreme meaning.

Results

This section reports the results in three analytical phases. The descriptive statistics subsection provides an impressionistic comparison of Pre-VST and Post-VST survey scores which guides the analysis in subsequent stages. Next, to further determine if the differences we observe in their descriptive statistics are significant, we seek to compress the 12 items into a smaller set of

variables for a more meaningful statistical comparison. Principle component analysis (PCA) was performed, and the results have been reported in the second subsection. Finally, after items were grouped into components according to the results from PCA, a paired *t*-test was performed to reveal if the difference between Pre-VST and Post-VST is significant.

Descriptive Statistics

A comparison of the descriptive statistics (Table 1) reveals that the Post-VST survey has lower scores than the Pre-VST survey for positively worded items. This indicates that the students orientated themselves closer to these positive traits after the treatment. Among negatively worded items, higher scores in Post-VST can be observed, meaning that the students oriented themselves further away from these negative traits. In general, there are noticeable differences between Pre-VST and Post-VST mean scores, which suggests that the students oriented themselves even closer toward positive traits and farther from negative traits after the treatment.

Table 1: Descriptive Statistics for 12 Items for Pre-VST and Post-VST

Traits	<i>N</i>	Pre-VST		Post-VST	
		Mean	<i>SD</i>	Mean	<i>SD</i>
1. Motivated	99	2.404	1.237	1.879	1.033
2. Interested	99	1.949	1.137	1.818	.962
3. Involved	99	2.343	1.108	1.990	1.035
4. Not stimulated	99	5.485	1.248	5.758	1.205
5. Don't want to study	99	5.980	1.204	5.980	1.237
6. Inspired	99	2.667	1.641	2.414	1.558
7. Unchallenged	99	5.657	1.287	5.939	1.114
8. Uninvigorated	99	5.515	1.232	5.808	1.056
9. Unenthused	99	5.697	1.138	5.889	.879
10. Excited	99	2.404	1.564	2.455	1.507
11. Aroused	99	2.343	1.394	2.444	1.401
12. Not fascinated	99	5.495	1.207	5.808	1.085
Valid <i>N</i> (casewise)	99				

Principal Components Analysis

PCA was used to uncover how the scores of different items relate to one another. PCA is particularly useful for reducing a large set of variables into a smaller number of constructs that can be used for better visualization and interpretation (Tabachnick and Fidell, 2013). In addition, PCA can help researchers explore the degree of relationship between the variables and the larger constructs they fall under. We use PCA over exploratory factor analysis because we are primarily concerned with data reduction, rather than discerning the interrelationships of the variables. In addition, to our knowledge there has been no prior study using these SD scales for measuring motivation to study vocabulary in this context, and PCA is preferred when there is no prior assumed relationship between variables (Brown, 2009b).

As mentioned previously, after eliminating cases with missing Post-VST data, 99 complete cases remained. This sample size is considered large enough given that Kaiser's measure of sampling adequacy is well beyond the .6 required for factor analysis (Tabachnick and Fidell, 2013: 620). Kaiser's sampling adequacy tells us whether there are enough correlations for PCA to be carried out. For the set of Pre-VST variables, Kaiser's sampling adequacy is at .88. For the Post-VST variables, Kaiser's sampling adequacy is at .81.

In determining the number of factors extracted through PCA, Kaiser's stopping rule was used. This rule guides researchers to look at only factors or components which have eigenvalues of greater than 1.00 (Brown, 2009a). There are three components above this cut-off point for the Post-VST data set. The eigenvalue of the third component from the Pre-VST data set turns out to be very close to 1.00, yet it is still slightly lower than 1.00. Given the exploratory nature of PCA, we elected to pursue our analysis at three components for both data sets to see if any comparable patterns would emerge. Further inspection into the result of PCA using Varimax rotation (as shown in Tables 2 and 3) reveals clear correlation patterns with three components for both Pre-VST and Post-VST. These three components for Pre-VST and Post-VST accounted for 72.2% and 65.6% of their total variances respectively. Component loadings that are higher than .40 are

marked with an asterisk, and this indicates a more than moderate correlation between the correspondent variable and component in the matrixes. The highest loading for each variable is marked in bold. Based on the communalities (h^2) or the cumulative variance of these three components for each variable, we can see that the three components accounted for more than 50% for all the variance in each variable in the Pre-VST data set, with the lowest one being Item 6 (Inspired), at 53.5%. In the Post-VST data set, the item with the lowest portion of variance extracted is Item 12 (Not fascinated) at 30.3% from the total variance observed in Item 12. Generally, in both Pre-VST and Post-VST data sets, the communalities are considerably high, indicating that this model of three components explains the variance of these variables well.

Table 2: Rotated Component Matrix from Pre-VST motivation survey

	Component			h^2
	1	2	3	
8. Uninvigorated	.850*	.202	.074	.768
7. Unchallenged	.840*	.104	.110	.728
9. Unenthused	.729*	.363	.174	.694
4. Not stimulated	.661*	.440*	.177	.663
5. Don't want to study	.629*	.446*	.106	.606
12. Not fascinated	.485*	.442*	.457*	.640
1. Motivated	.204	.872*	.107	.813
2. Interested	.307	.808*	.229	.800
3. Involved	.394	.768*	.222	.794
10. Excited	.022	.090	.897*	.813
11. Aroused	.168	.143	.871*	.807
6. Inspired	.222	.428*	.549*	.535
% of Variance	28.3	24.9	18.9	72.2

Table 3: Rotated Component Matrix from Post-VST motivation survey

	Component			h^2
	1	2	3	
8. Uninvigorated	.846*	.217	.083	0.770
7. Unchallenged	.775*	.003	.051	0.604
4. Not stimulated	.731*	.027	.109	0.547
5. Don't want to study	.662*	.214	.046	0.486
9. Unenthused	.609*	.319	.409*	0.640
12. Not fascinated	.410*	.323	.174	0.303
2. Interested	.219	.858*	.181	0.817
1. Motivated	.165	.847*	.087	0.752
3. Involved	.114	.840*	.232	0.772
10. Excited	.219	.033	.876*	0.817
11. Aroused	.123	.168	.875*	0.810

6. Inspired	.007	.358*	.653*	0.554
% of Variance	24.8	21.8	18.9	65.6

In the Pre-VST rotated component matrix (Table 2), Item 8 (Uninvigorated), Item 7 (Unchallenged), Item 9 (Unenthused), Item 4 (Not stimulated), Item 5 (Don't want to study), and Item 12 (Not Fascinated) are loaded together on the first component. Items 1-3 (Motivated, Interested, and Involved) load very clearly with the second component, and Items 6, 10, and 11 load strongly with the third component. It is important to highlight that the same pattern is also observed in Post-VST data set (Table 3). Although the patterns of highest loadings for each variable in both Pre-VST and Post-VST are clear, there is some degree of complexity for Item 12 for the Pre-VST due to the loadings above the cut point .40 in all three components.

In Component 2, items worded "motivated", "interested", and "involved" loaded strongly together. When compared with Component 3 that has items worded "excited", "aroused", and "inspired," we can see that Component 2 has a related meaning to motivation in a moderate sense while Component 3 has a more extreme feeling that could be considered a more intense state of motivation. For Component 1, all six of the items are structurally reversed, and this appears to be the only distinguishing aspect when compared to Components 2 and 3. The consequence of this linguistic effect on this first component will be further discussed in the final section of this study.

The main objective of the PCA was to reduce the number of variables into a more manageable set of components to help improve interpretability. Based on the loadings of the three components, we can infer that these 12 items are measuring three constructs quite consistently across Pre-VST and Post-VST. Further examination of measurement reliability revealed high Cronbach's alpha measurements for each component (Table 4).

Table 4: Reliability (Cronbach's alpha)

	Pre-VST	Post-VST
Component 1	0.90	0.80
8. Uninvigorated		
7. Unchallenged		
9. Unenthused		
4. Not stimulated		
5. Don't want to study		
12. Not fascinated		
Component 2	0.86	0.87
1. Motivated		
2. Interested		
3. Involved		
Component 3	0.80	0.79
10. Excited		
11. Aroused		
6. Inspired		
R_{Total}	0.05	0.44

Paired t-Tests of the Components

Utilizing the three components extracted from the data, paired *t*-tests were conducted to confirm the statistical significance of the changes apparent in the descriptive statistics of the pre-VST and post-VST scores. Table 5 shows statistically significant changes in Component 1 ($p=.038$) and Component 2 ($p=.002$). However, the effect sizes were small for both Component 1 ($d=.21$) and Component 2 ($d=.32$). The confidence intervals reveal that, within this study's context and with 95% confidence, average scores for Component 1 increase somewhere between .012 and .439 (indicating a small change toward the positively worded trait on the right), and average scores for Component 2 decrease somewhere between .125 and .549 (indicating a small change toward positively worded trait on the left). The differences in scores for Component 3 were not statistically significant ($p=.821$).

Table 5: Paired samples *t*-test of Pre- and Post-VST component scores

Variables	Mean Differences	SD	95% Confidence		<i>t</i>	<i>df</i>	<i>p</i> value (2-tailed)
			Lower	Higher			
Component 1							
Post - Pre	.226	1.069	.012	.439	2.100	98	.038*

Component 2							
Post - Pre	-.337	1.063	-.549	-.125	-3.151	98	.002*
Component 3							
Post -Pre	-.034	1.475	-.328	.261	-.227	98	.821

* $p < 0.05$

Discussion

The central focus of this study was to investigate if sharing knowledge with L2 English students on lexical coverage and vocabulary size has some effect on their motivation to study. The results of the paired *t*-tests for two of the components, comparing motivation survey scores recorded at the beginning of the term and motivation survey scores recorded after informing the students of their vocabulary size, suggest that there is a real effect, albeit small. For both Components 1 and 2, the change in the scores was statistically significant and in the direction representing increased motivation to study and increased positive attitudes. However, there were several complicating aspects within the findings.

One notable finding was revealed by PCA. The PCA results showed that, for the most part, traits were grouped clearly into the three components and similarities within the groupings were relatively easy to interpret. However, the similarities connecting traits in Component 1 highlight an important concern regarding a linguistic effect which may have impacted the students' response patterns. While it is true that the mean scores of the post-VST showed 'stronger' motivation (scores for Component 1 moved to the right, and scores for Component 2 moved to the left), the only apparent link between items in Component 1 was that they were all structurally reversed in the format of the survey. The assumption could be made that the positioning of negative words on the left side of the survey had some effect on the students' psychological perception of the items. Though this cannot be confirmed within the scope of this study, this is an important consideration for researchers using similar surveys to investigate language learner motivation. It would be interesting to further inspect this phenomenon related specifically to the structure of SD scale motivation surveys. The same survey could be given with all

positive terms on the same side to eliminate the negative wording effect that characterizes Component 1, or the items could be randomly reversed on each individual survey.

Additionally, it is interesting that the study has found a distinction between the traits grouped in Components 2 and 3. Component 2 included the words *motivated*, *interested*, and *involved*, whereas Component 3 included *aroused*, *inspired*, and *excited*, which could be considered stronger emotional words. The nuance of these two sets of words in Thai indicate rather similar distinctions to those made in English. *Aroused*, *inspired*, and *excited* connote a deep and fired-up sense of engagement that is not present in *motivated*, *interested*, and *involved*. As mentioned previously, *aroused* and *excited* are terms that come quite close in Thai without the sexual connotation that distinguishes *aroused* in English. This offers some explanation as to why these two items loaded strongly together in the same component.

With regards to the pedagogical implications of the positive change in student motivation and attitudes, there is an obvious concern regarding how long this effect will last. If the change in motivation and attitudes was found to be only momentary, it would call into question the practicality of sharing lexical coverage and vocabulary size research findings with students. A delayed posttest would have alleviated this concern; however, due to constraints at the research site, we were unable to conduct one. Nevertheless, the results of this study offer some evidence in support of sharing research findings on lexical coverage and vocabulary size in the classroom. We realize that motivation is something that fluctuates and can change easily depending on various factors. However, utilizing a more practical pedagogical approach, teachers could work consistently over time with students, sharing vocabulary research insights to maintain student motivation for vocabulary learning, rather than only giving them a one-time treatment.

Obviously, more work is needed to uncover the most effective ways of applying these research findings in L2 vocabulary teaching. The handout used in this study can certainly be

improved upon and teachers can create other effective teaching materials to match their unique educational contexts. Bridging the gap between research and practice is still a prominent problem in the field of L2 education, and more studies on the application of research findings in the language classroom are needed in response. It is important that these studies share their teaching materials along with details of the teaching process, to allow teachers and researchers to clearly understand what was done. Through this, teaching practices can be adjusted, tested, improved upon in different contexts, and hopefully reported on in future research publications and presentations.

The Authors

Jay Tanaka is a PhD candidate in the Department of Second Language Studies at the University of Hawai'i at Mānoa. His research interests are in second language pedagogy, reflection in language teacher education, and critical thinking instruction.

Patharaorn Patharakorn is a PhD candidate in the Department of Second language Studies at the University of Hawai'i at Mānoa and an instructor at the Chulalongkorn University Language Institute. Her research interests include language testing, classroom assessment, and oral assessment.

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APPENDIX A

(English Translation)

How many English words do you know?

To learn any language, it is first important to learn the words! To enjoy a book in English, or a conversation in English, we need to know MOST of the words.

But, what words should we study?

Researchers have used computers to count the words in thousands of newspapers, magazines, movies, textbooks, and even conversations! Then, they created lists of the most common English words in thousands: 1000 most common, 2000 most common, etc...

Generally, when we study English, we learn the words in order starting from the most common words, then we study the less common words!

How many words should I learn?

Let's say you want to watch an English movie...

Using a computer, researchers were able to count all of the words in the movie: "Shrek"

If I know...	then I know...
1000 words	83% of the words in "Shrek"
2000 words	88%
3000 words	94%
4000 words	97%
5000 words	97.6%
6000 words	98%

Of course, Learning More Words = Better Understanding!

What about other things?

If you would you like to...	For <u>95%</u> you need...	For <u>98%</u> you need...
Reading a novel	4000 words	8000 – 9000

		words
Reading a newspaper	4000 words	8000 – 9000 words
Watching a children's movie	3000 words	6000 – 7000 words
Listening to a native speaker's conversation	3000 words	6000 – 7000 words

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APPENDIX B

(Survey in Thai with translations)

แบบทดสอบวัดแรงจูงใจด้านต่างๆ (Trait Motivation Scales)

(Adapted and translated from Christophel, 1990)

Directions: How do you feel about studying English vocabulary? Please circle the number toward either word which best represents your feelings. Note that in some cases the most positive score is “1” while in other cases it is “7.”

คำชี้แจง: ท่านรู้สึกอย่างไรต่อการเรียนคำศัพท์ภาษาอังกฤษ กรุณาพิจารณาตัวเลขในข้อต่อไปนี้ แล้ววงกลมล้อมรอบตัวเลขตามระดับที่ใกล้เคียงกับบรรยายความรู้สึกท่านมากที่สุด ในบางข้อ โปรดสังเกตว่าหมายเลข 1 ใช้แทนความรู้สึกด้านบวกที่สุด ในขณะที่บางข้อ เลข 7 ใช้แทนความรู้สึกด้านลบที่สุด

(1) มีแรงจูงใจ motivated	1	2	3	4	5	6	7	ไม่มีแรงจูงใจ unmotivated
(2) สนใจ interested	1	2	3	4	5	6	7	ไม่สนใจ uninterested
(3) รู้สึกมีส่วนร่วม involved	1	2	3	4	5	6	7	ไม่รู้สึกมีส่วนร่วม Uninvolved
(4) ไม่มีแรงกระตุ้น not stimulated	1	2	3	4	5	6	7	รู้สึกถูกกระตุ้น stimulated
(5) ไม่อยากเรียน	1	2	3	4	5	6	7	อยากเรียน

don't want to study								want to study
(6) มีแรงบันดาลใจ inspired	1	2	3	4	5	6	7	ขาดแรงบันดาลใจ uninspired
(7) ไม่มีความท้าทาย unchallenged	1	2	3	4	5	6	7	ท้าทายความสามารถ Challenged
(8) ไม่มีชีวิตชีวา uninvigorated	1	2	3	4	5	6	7	มีชีวิตชีวา Invigorated
(9) ไม่กระตือรือร้น unenthused	1	2	3	4	5	6	7	กระตือรือร้น Enthusied
(10) ตื่นเต้น excited	1	2	3	4	5	6	7	ไม่ตื่นเต้น not excited
(11) รู้สึกตื่นตัว aroused	1	2	3	4	5	6	7	ไม่รู้สึกตื่นตัว not aroused
(12) ไม่หลงใหลใคร่รู้ not fascinated	1	2	3	4	5	6	7	หลงใหลใคร่รู้ fascinated