

***Phrasal Verbs and Breadth of Vocabulary
Knowledge in Second Language Reading:
An Exploratory Study***

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This study explores whether the presence of phrasal verbs in reading texts affects the reading recalls of EFL learners, and whether having a large vocabulary size assists learners' reading recall of a text with frequent occurring of phrasal verbs. Forty-five university students from North Taiwan were invited to participate in the present study. Three major instruments were used: the Vocabulary Levels Test, two reading passages, and a reading recall measure. The study was conducted over two consecutive weeks, with these three instruments of data collection implemented separately. Results indicated that the occurrence of phrasal verbs significantly hindered readers' recall of the proposition units containing phrasal verbs, while it did not impact the recall of those units not containing phrasal verbs. This study's second line of inquiry revealed that having increased vocabulary size did not guarantee higher competence as regards coping with phrasal verbs in reading. These findings were further extended to provide some pedagogical recommendations regarding the teaching of phrasal verbs in EFL contexts.

Key words: breadth of vocabulary knowledge, phrasal verb, reading recall, vocabulary size

INTRODUCTION

The study of lexical phrases has been an issue of interest to researchers in L2 reading and vocabulary research. Researchers in this trend have gone beyond the study of single words, extending the scope to study lexical phrases. However, while lexical phrases such as collocations and formulaic sequences have received great attention in recent years, phrasal verbs (PVs) seem to have been scarcely discussed in L2 reading. A phrasal verb is defined as “a *verb* + *particle* combination that functions as a single verb, both parts giving up meaning in order to form a new lexical item” (Darwin and Gary, 1999, p. 65). It expresses less transparent meaning and syntactic oddity in nature; because of this Dagut and Laufer (1985) were able to demonstrate that ESL learners often misinterpreted phrasal verbs and avoided them by using single-word verbs, such as substituting “I *met* an old friend yesterday” for “I *ran into* an old friend yesterday.” This avoidance results from the fact that the less transparent meaning of a phrasal verb may cause ESL/EFL learners to miscomprehend them in reading (Folse, 2004).

However, phrasal verbs widely occur in reading texts. As Cornell (1985) pointed out, phrasal verbs are commonly used in “all registers, from comic books and street slang to the most academic forms of the language” (cited in Darwin and Gray, 1999, p. 66). Sinclair (1991) also asserted native speakers’ thorough acceptance of phrasal verbs over single word alternatives in communication. Due to the pervasiveness of phrasal verbs in language communication, they deserve our consideration, as well as an exploration of the learning of phrasal verbs in language education. In this study, we focus primarily on how the presence of phrasal verbs influences reading recall and whether vocabulary knowledge influences the recall of phrasal verbs in L2 reading.

Speaking of vocabulary knowledge, the current study targets breadth of vocabulary knowledge (or vocabulary size), meaning the estimated number of words that a learner knows. In the Taiwanese learning context, a great number of teachers strive to help students expand their vocabulary size and

pay relatively less pedagogical attention to the development of vocabulary depth. Thus, given that phrasal verbs hinder reading recall, our second attempt is to investigate whether vocabulary size, as a pedagogical focus of English education in Taiwan, would increase learners' competence in recalling text propositions containing phrasal verbs. Thus, the two research issues ran as follows: (a) does the use of phrasal verbs have any impact on the reading recalls of EFL learners, and (b) does breadth of vocabulary knowledge influence EFL learners' reading recall in reading texts which contain more phrasal verbs? The former addresses the impact of phrasal verbs on reading recall, while the latter discusses the interaction of phrasal verb and breadth of vocabulary knowledge on reading recall.

LITERATURE REVIEW

Difficulty in Comprehending Phrasal Verbs

A phrasal verb generally refers to a two-word or three-word combination that functions as a single verb. The first component is always a verb followed by a preposition or a particle. Quirk, Greenbaum, Leech, and Svartvik (1985) defined phrasal verbs on two primary dimensions: syntactic and lexical. The syntactic dimension views a phrasal verb as a single grammatical item, and it reports that a phrasal verb consists of "a verb followed by a morphologically invariable particle" (cited in Darwin & Gray, 1999). On the lexical basis, the meaning of a phrasal verb is less transparent, because its meaning can be rarely predicted from the meaning of its parts. For example, a learner who knows "throw" and "up" may not understand the meaning of "throw up" in the statement "John did not *throw up* his plan." Further, Side (1990) stated that many phrasal verbs have multiple meanings. In the example "make up," it expresses different meanings in "The story was *made up*" and "We need one hundred dollars to *make up* the sum required." Therefore, a phrasal verb acts as a single verb syntactically and lexically with multiple meanings, as is

the case with “put on” in “*put on* the dress” and “*put on* the show.”

Although phrasal verbs are largely used in oral speech and written texts, understanding them is a relatively tough task for ESL/EFL learners. Celce-Murcia and Larsen-Freeman (1990) emphasized the fact that because *verb + particle* combinations are seldom found in non-Germanic languages, ESL learners with non-Germanic L1 backgrounds find it difficult to learn phrasal verbs. Folse (2004: 6-8) also put forward four reasons why mastering phrasal verbs is problematic for ESL learners. To begin with, because phrasal verbs are frequently used in English, students have to learn a great number of phrasal verbs to function well when communicating in English. Second, as stated above, the meaning of a phrasal verb is less transparent and is often unconnected to that of its parts. The co-occurrence of two highly-frequent words may produce a somewhat different meaning, which is not related to either of them (Sinclair, 1991). Therefore, inducing a contextually appropriate meaning is problematic for English learners.

Another problem discussed in Folse’s (2004) study is that phrasal verbs are usually reduced in speech owing to common conversational principles. When two words occur together in conversation, one of them will be easily reduced, such as “took off” being pronounced as “to cough” in rapid speech. This phenomenon intensifies the processing load of a learner contending with the challenges of listening comprehension. Fourth, the location of the particle or preposition following the main verb is problematic. In the sentence “He *made up* the story,” the phrasal verb “make up” which means “invent” is separable. The nature of phrasal verbs allows the particle “up” to be placed three words away, as in “He *made* the story *up*.” The distance between the parts in phrasal verbs makes it difficult for learners to comprehend them as a whole that implies a non-literal meaning.

Breadth of Vocabulary Knowledge and its Impact on Lexical Inferencing in Reading

Vocabulary knowledge can be classified into two major dimensions:

breadth of vocabulary knowledge and depth of vocabulary knowledge (Read, 1989, 2000; Wesche & Paribakht, 1996). Breadth of vocabulary knowledge deals with the number of words that a learner knows, while depth of vocabulary knowledge pertains to how well a learner knows about the features of a word. Discussing breadth of vocabulary knowledge, Nation (2001) defined it as the number of words known to learners, and knowing a word refers to having the knowledge of form, meaning, and use. He added that breadth of vocabulary knowledge could be further sorted into receptive vocabulary size and productive vocabulary size. Receptive vocabulary size refers to words that a learner needs in order to comprehend listening and reading input, while productive vocabulary size concerns words needed to convey messages in speaking and writing. Comparing the relative sizes of these two aspects of their vocabulary knowledge, ESL/EFL learners' receptive vocabulary is larger than their productive vocabulary (Laufer, 1998; Nation, 2001; Waring, 1997).

To explore learners' probabilistic vocabulary size, Nation's (2001) Productive Levels Test and Nation's (1983, 1990) Vocabulary Levels Test have prevalently been employed. On the one hand, Nation's (2001) Productive Levels Test approaches learners' productive vocabulary size by assessing how many words they know in a productive way. This measure contains five word levels, namely, the 2000 word level, the 3000 word level, the 5000 word level, the university word level, and the 10000 word levels. By using a quasi-C-test format, the target word in each item is embedded in a sentence with its second half erased. Learners are required to replace the missing part by considering the surrounding words and the first half of the target word.

On the other hand, word-recognition tasks are widely used to assess a learner's vocabulary size (Palmberg, 1989). One standardized vocabulary measure is Nation's (1983, 1990) Vocabulary Levels Test (VLT). Based on word frequency, this test uses word-meaning matching format and consists of five different test levels, namely, 2000, 3000, 5000, academic vocabulary, and 10000 word levels. In each subtest, learners read each target item and find an English definition that best defines it. An accuracy rate of 66.67 per

cent is regarded as a cut-off point for passing, and those who obtain this accuracy rate are considered as having passed the level (Nation, 1990). This measure indicates the highest level a learner can pass, and it is considered a reliable indicator of a learner's estimated vocabulary size. As follow-up validation work, Schmitt, Schmitt and Clapham (2001) came up with another two versions of the VLT, both of which adopted the identical test format of Nation's VLT. These two modified versions were analyzed with proper validation. In L2 vocabulary research, Nation's VLT and the two versions by Schmitt et al. are prevalently utilized to provide guidance for vocabulary research and instruction.

Studies in vocabulary knowledge size have provided empirical evidence supporting the notion that vocabulary size influences how well readers infer the meanings of unknown words. Lexical inferencing skills are learners' abilities to produce "informed guesses about word meaning based on available cues, linguistic or nonlinguistic, and various aspects of the learner's knowledge" (Qian, 2005, p. 34). When readers encounter unknown words, they will attempt to guess its meaning in the text by means of their knowledge about the text. Lexical inferencing strategies involve top-down processing and/or bottom-up processing, the former involving contextual or sentence-level clues (e.g., applying world/background knowledge, and connecting the unknown word to other parts of the text) and the latter focusing on internal word structures (e.g., analysis of internal word structure such as graphic and morphological components) (Haastrup, 1991; also see Nassaji, 2003 for review).

The number of words in the reading passage which are known to the reader would also impact the success of lexical inferencing in reading (e.g., Haynes, 1993; Lee & Wolf, 1997; Pulido, 2007; Qian, 2002). Qian (2002, p. 517), for instance, argued that learners with a larger vocabulary size are equipped with "a larger database from which to guess the meaning of unknown words or behavior of newly learned words." Coverage of known words in a reading passage is also strongly associated with the success of lexical inferencing in reading (e.g., Hirth & Nation, 1992; Laufer, 1989; Liu & Nation, 1985;

Pulido, 2007). In his study on the effects of topic familiarity and passage sight word in lexical inferencing, Pulido (2007) discovered that learners' passage sight word, meaning known words in a reading passage, would influence the process of form-meaning connections for unknown words in reading. Thus an increase in sight word equals improvement in the ability of successful lexical inferencing. Likewise, vocabulary research has also documented that the coverage of at least 95 percent known words in a text is the ideal situation for successful lexical inferencing (Hirth and Nation, 1992; Laufer, 1989; Liu & Nation, 1985). Since the amount of sight words or coverage of known words is largely determined by learners' vocabulary size, these findings may be extended to conclude that readers' breadth of vocabulary knowledge would influence how successfully they could infer meanings from unknown words.

Rationale for the Current Study

This study targets two phases, namely, the effect of phrasal verbs on reading recall, and the assistance of vocabulary size on the inferencing of phrasal verbs as measured in reading recall. On the one hand, researchers such as Folse (2004) and Celce-Murcia and Larsen-Freeman (1990) have highlighted the difficulty of comprehending phrasal verbs in language communications. Our hypothesis thus assumes that the presence of phrasal verbs would hinder EFL readers' reading recall. On the other hand, lexical inferencing strategies are widely adopted by ESL/EFL learners in order to guess the meaning of unknown words in reading comprehension (e.g., Chern, 1993; de Bot, Paribakht, & Wesche, 1997; Paribakht & Wesche, 1999). Research in L2 reading has documented that readers' vocabulary size impacts their lexical inferencing skills. However, previous research in this trend often targets inferencing of single words, and the inferencing of semantically ambiguous lexical phrases, such as phrasal verbs, has barely been discussed. Phrasal verb is a unique lexical category because it is composed of two or three known words but involves a less transparent meaning. We attempt to

extend the scope of the current L2 research to study the potential effect of vocabulary size on the semantic inferencing of phrasal verbs. Our second hypothesis is that readers with a larger vocabulary size have more developed lexical inferencing strategies, and they would infer the meanings of phrase verbs more easily. In this vein, they would outperform those with a smaller vocabulary size in their performance of recalling phrasal-verb-embedded propositions.

METHOD

Participants

The study involved 45 undergraduates recruited from two elective English classes at a university in North Taiwan. These participants (8 males and 37 females) were non-English majors ranging in age from 18 to 23 who prior to this study had learned English for a minimum of seven years. This sample pool was chosen mainly because of the potential gap in their English proficiency. In non-English departments in Taiwan, students often show a diverse proficiency of English, and it was believed that their diverse English proficiency would result in a great within-subject difference in vocabulary size.

The participants were sourced from two intact English classes, and divided into two separate groups, namely, the control group (Class A: 26 participants) and the experimental group (Class B: 19 participants). The control group and the experimental group read a different version of the target text. To investigate the homogeneity of the two groups at the outset of this study, an achievement test was given to both classes as their midterm examination. This achievement test was designed by the researcher and aimed to assess students' vocabulary competence, reading competence and writing skills. Two main sections were covered, namely, the vocabulary section targeting key words covered in reading materials prior to the midterm examination,

and the reading-and-writing-combined section assessing the participants' comprehension of a reading passage in the format of multiple choice questions and short answer questions. Each student earned a numerical score on the test. A Mann-Whitney U test was administered to measure whether the control group and the experimental group were significantly different in terms of their language achievement, and the result indicated that the differences between the two groups were not significant ($Z = -.265, p > .05$). Thus, the two groups can be considered to have been equivalent at the outset of the main study.

Materials

Three instruments were employed in this study: the Vocabulary Levels Test, two reading passages, and a reading recall measure.

The Vocabulary Levels Test

The Vocabulary Levels Test (VLT) modified by Schmitt, Schmitt and Clapham (2001) was employed to estimate the participants' vocabulary size in this study (see Appendix A). This vocabulary test, which has been properly validated, is widely employed to assess learners' breadth of vocabulary knowledge. It contains five word levels, namely, the 2000 word level, the 3000 word level, the Academic Word level, the 5000 word level, and the 10000 word level. In addition, it should be noted that the Academic section may be placed at any point at the continuum, depending on the purpose of testing (Schmitt et al., 2001). In this study, adopting the sequence suggested by Schmitt et al., we chose to place the Academic section between the 3000 word level and the 5000 word level. Also, it is generally assumed that accuracy rates drop when learners move on to a higher level. A subsequent back-check on the accuracy rate also confirmed that the difficulty level of the Academic section stood at the point between the 3000 and the 5000 word levels.

In the present study, only the first four levels of the VLT were administered to the participants, with the 10000 word level being omitted. The exclusion of the highest word level was decided based on a case study on Taiwanese EFL learners' probabilistic vocabulary size by Jiang (2004). In Jiang's study, she reported that the majority of the seniors majoring in English passed the 5000-word vocabulary size level, whereas the non-English majors could only pass the 2000 or 3000 word levels. Based on this finding, we assumed that most of the participants could pass the 2000, 3000 and the Academic word levels, and only a small proportion of the participants could pass the 5000 word level. The 10000-word level was the least attainable and was thus excluded from this study.

As Kamimoto (2001) pointed out, the passing score of Nation's (1990) Vocabulary Levels Test is 12 items out of 18, which translates as a minimum accuracy rate of 66.7 per cent. Following this passing principle, the threshold level for passing each word level is 20 items out of 30 for the 2000, 3000, and 5000 word levels and 24 items out of 36 for the Academic Word level. Learners reaching this minimum accuracy rate were considered as having passed each level.

Reading Passages

Two English reading passages that depict the same story were developed by the researcher based on the story "Kamala, a Wolf-girl of India" selected from Low's (1995) *Thresholds in Reading*. The story talks about two little Indian girls who were discovered living with wolves in India in 1920, and it focuses on how these two little wolf-girls learned to integrate into human society by learning to behave like humans. This reading selection was chosen because it was considered culturally unfamiliar to the participants.

This selection was modified to form two different versions of the text: one version of the text containing fewer phrasal verbs (hereafter *TFPV version*) and one version with more phrasal verbs (hereafter *TMPV version*). In the TFPV version, there was only one phrasal verb (i.e., *frighten away*), while in

the TMPV version, not only did this phrasal verb remain but additional twenty-four phrasal verbs were utilized to replace the equivalent verb phrases that appeared in the TFPV version (see Table 1). To study learners' lexical inferencing skills as regards phrasal verbs, we focused on phrasal verbs with less transparent meanings, and ensured that all the replacement phrasal verbs could not be interpreted literally. However, unlike other phrasal verbs that express less transparent meaning, the phrasal verb "*frighten away*" could be explained literally in this text. We opted to exclude this phrasal verb from our data analysis out of a preference for specific research focus on phrasal verbs with less transparent meanings. The test modification principles were as follows:

1. The TFPV version was developed from the original text first.
2. The researcher analyzed all the verbs in the TFPV version to discern what verbs could possibly be replaced with phrasal verbs.
3. To construct the TMPV version, 24 verb phrases in the TFPV version were replaced with equivalent phrasal verbs. Two reference guides were consulted for lexical modification: *Cambridge International Dictionary of Phrasal Verbs* (1997) and some online phrasal verb dictionaries.
4. To ensure the authenticity and accuracy of the modified reading passages, both versions were developed in consultation with one native speaker of English who was an experienced writing teacher at college level.

TABLE 1
Phrasal Verbs and Their Equivalents for Replacement

Verb Equivalents in TFPV	Phrasal Verbs in TMPV
... <i>visiting</i> his friends	... <i>calling on</i> his friends
... <i>invented</i> the story	... <i>made up</i> the story
... <i>discuss</i> the 'man ghost'	... <i>talk over</i> the 'man ghost'
Singh <i>interrupted</i>	Singh <i>broke in</i>
... <i>expected</i> to see the 'man ghost'	... <i>figured on</i> seeing the 'man ghost'
... <i>accompanied</i> Singh <i>into</i> the forest	... <i>saw</i> Singh <i>into</i> the forest
... <i>continued</i> their expedition	... <i>carried on</i> their expedition
... <i>fled</i> the forest immediately	... <i>broke out of</i> the forest immediately
... <i>make</i> others <i>relax</i>	... <i>calm</i> others <i>down</i>

... <i>discovered</i> that...	... <i>found out</i> that...
... <i>appeared</i> from the cave	... <i>came out</i> from the cave
... <i>slowly started to understand</i> that...	... <i>caught on to</i> what stood in front of them
... <i>suddenly became very angry</i>	... <i>suddenly blew up</i>
... <i>accepted</i> the difficult task	... <i>took on</i> the difficult task
... <i>were</i> two little girls	... <i>turned out to be</i> two little girls
... <i>took care of</i> these little girls	... <i>looked after</i> these little girls
... <i>wore</i> clothing	... <i>put on</i> clothing
Human food <i>made</i> them <i>feel sick</i>	Human food <i>disagreed with</i> them
... <i>Amala died</i>	... <i>Amala passed away</i>
... <i>understand</i> what had happened	... <i>figure out</i> what had happened
... <i>discover</i> that her sister was gone	... <i>find out</i> that her sister was gone
... <i>became sick with</i> typhoid fever	... <i>came down with</i> typhoid fever
... <i>died</i> in Singh's orphanage	... <i>passed on</i> in Singh's orphanage
... <i>always continue</i>	... <i>always live on</i>

Furthermore, two reading passages received scores on the SMOG Readability Level. The readability level of the TFPV version is 10.3 and that of TMPV version is 9.7 (see Table 2). It should be noted that phrasal verb is often a combination of high-frequency words (e.g., *make up*) while its one-word equivalent (e.g., *invent*) is often less frequent. Results of the respective vocabulary profiles further confirmed that the inclusion of phrasal verbs increased the proportion of high-frequency words in the TMPV version (Table 3). This could explain why transforming verb phrases into phrasal verbs could lead to slightly lower reading difficulty in the TMPV version. Nevertheless, because of the trivial difference in readability, these two texts can be considered similar in this respect. In addition, to safeguard the readability of the two reading selections, three student informants reviewed the passages and commented on the wordings prior to the administration of the main study.

TABLE 2
Readability of the Two Reading Passages

Measure	Passage	
	TFPV	TMPV
Words	597	614
Syllables	851	847
Sentences	38	38
Paragraph	4	4
SMOG Grade Level	10.3	9.7

TABLE 3
Vocabulary Profile of the Two Reading Passages

	TFPV				TMPV			
	Families	Types	Tokens	Percent	Families	Types	Tokens	Percent
K1 Words (1 to 1000)	176	209	499	83.58%	181	217	523	85.18%
K2 Words (1001 to 2000)	29	31	36	6.03%	25	27	31	5.05%
AWL Words (academic)	8	8	8	1.34%	6	6	6	0.98%
MED Words (technical)	...			0.00%	...	1	1	0.16%
Off-List Words	22	26	54	9.05%	21	25	53	8.63%
	235	274	597	100%	233	276	614	100%

Reading Recall Measure

Reading recall measure is a preferably effective way to assess reading comprehension quantitatively and qualitatively (Berkemeyer, 1989; Bernhardt, 1985, 1991). Berkemeyer (1989) stated that this measure requires students to comprehend a text thoroughly, and it allows misunderstanding to surface. In order to produce recall, students have to construct meanings through reading texts and re-construct meanings to make recalls. This process makes it possible for researchers to discern what details are highlighted or downplayed within the individual's cognitive reading process. Furthermore, analysis of reading recall is also referred to as the "most straightforward assessment of the result of the text-reader interaction" (Johnston, 1983, p. 54) and "a purer

measure of comprehension” (Bernhardt, 1991, p. 200). Generally speaking, if a reader recalls a great number of text details correctly, it indicates that he or she understands and memorizes the text effectively. Conversely, ineffective or incorrect recall of a text implies that the reader has difficulty in comprehending and memorizing the text. In this study, free-recall tests were administered immediately after the participants read a passage. As indicated in Lee (1986), writing in a foreign language may hinder participants from demonstrating what they comprehend clearly. Thus, the participants were advised to write their recall protocols in their first language, that is, Chinese; they should also give as much information as possible.

Data Collection

Data were collected over the course of two consecutive weeks. In the first session, the participants from both classes took the Vocabulary Levels Test for thirty minutes. In the second week, the control group read the TFPV version, while the experimental group read the TMPV version of the text for fifteen minutes. Following their reading, they wrote reading recall protocols for twenty-five minutes, giving as much information as possible in their recall.

Data Analysis

Scoring of reading recalls was measured using a pausal unit analysis system (Bernhardt, 1991; Johnson, 1970). To divide the reading passages into pausal-breadth unit propositions, Bernhardt’s procedure was followed. Two native speakers of English were invited to read the passages out loud and identify the pausal units in each passage. Excluding the proposition embedding the semantically-transparent phrasal verb “*frighten away*”, the TFPV version contains a total of 103 propositions and the TMPV version has 101 propositions. Once propositions were identified in each text, the weighted analysis system was adopted to weigh the importance value of each

proposition on four levels, namely, 1) *the least important*, 2) *the next least important*, 3) *the most important*, and 4) *propositions with phrasal verbs* (see Table 4), each of which contained approximately equal number of propositions in each text. This weighted analysis system was adopted because it allowed researchers to discover the extent to which different types of text information were processed by a given reader. This system also enabled reading comprehension to be analyzed from a more qualitative perspective.

According to Bernhardt (1991, p. 209), the importance-based classification of text propositions has to be done by two fluent readers, so two doctoral students in applied linguistics, who were also experienced English teachers, collaboratively classified all of the 24 propositions with a target phrasal verb in both texts into Level 4, and sorted out the remaining non-phrasal-verb-embedding propositions based on their respective importance value. Furthermore, for data analysis, student recalls collected in both groups were eventually manually identified and weighted by the researcher, and a doctoral student in applied linguistics was invited to analyze 20 per cent of the data for inter-rater reliability. Both raters presented high agreement rates regarding the identification ($r = .88, p < .01$) and classification ($r = .96, p < .01$) of pausal units. In addition, both reading passages have a slightly different number of pausal units in Level 1, and this motivated the current study to focus on the percentage of recalled units in each level, rather than the number of units recalled for subsequent comparison.

TABLE 4
Distribution of Weighted Propositions in the Four Levels of Importance

# of propositions		TFPV	TMPV
Non-phrasal-verb-embedding propositions	Level 1	27 (26.21)	25 (24.75)
	Level 2	26 (25.24)	26 (25.74)
	Level 3	26 (25.24)	26 (25.74)
Phrasal-verb-embedding Propositions	Level 4	24 (23.30)	24 (23.76)
Total		103	101

Note. Numbers in parenthesis show percentages.

Owing to the limited sample size in this study, reading recall was primarily analyzed by means of the Mann-Whitney U Test, which is similar to the *t* test used to assess whether two groups of observation have identical means (Brown, 1988). The Mann-Whitney U Test was administered in two directions. On the one hand, it was used to analyze whether the presence of phrasal verbs (TFPV group versus TMPV group) had a significant impact on the percentage of recalled units in each level. On the other hand, focusing on the TMPV group only, we further assembled the participants into two subgroups of differing vocabulary size, in order to discern whether size of vocabulary knowledge assisted EFL learners' reading recall after reading a text with high incidence of phrasal verbs.

RESULTS

Interaction of Text Versions and Reading Recalls

The primary focus of the current study was intended to investigate whether the frequent use of phrasal verbs would influence the number of pausal-unit propositions recalled immediately after reading. Table 5 indicates group comparisons on the recall of four types of pausal units between the TFPV group and the TMPV group. The results showed that learners in the TFPV group significantly outperformed those in the TMPV group regarding the recall of the total pausal units ($p < .05$), the propositions embedding phrasal verbs (i.e., Level 4 units) ($p < .01$), and the percentage of Level-4 units in the total units recalled ($p < .01$). On the other hand, the use of pausal units did not significantly hinder the recall of propositions in Level 1 to Level 3, meaning that its effect was not found on non-phrasal-verb-embedding propositions. On the whole, because the presence of phrasal verbs did not impact Level 1 to Level 3 units, the significant difference in the number of total pausal units recalled after reading between the two groups can be attributed to the difference in Level 4 units recalled.

TABLE 5
Group Comparisons on the Recall of the Four Types of Pausal-Unit Propositions
(N=45)

	TFPV (<i>n</i> = 26)		TMPV (<i>n</i> = 19)		Z
	Mean Rank	Sum of Rank	Mean Rank	Sum of Rank	
Total Units Recalled	26.62	692.00	18.05	343.00	-2.161*
Level 1	22.88	595.00	23.16	440.00	-.069
Level 2	25.62	666.00	19.42	369.00	-1.572
Level 3	23.56	612.50	22.24	422.50	-.335
Level 4	29.37	763.50	14.29	271.50	.3822**
Level 4 of Total Units	28.58	743.00	15.37	292.00	-3.333**

Note. Numbers in parenthesis show percentages of recall

* $p < .05$ ** $p < .01$

Phrasal Verb and Breadth of Vocabulary Knowledge

The second phase of the present study is to investigate whether learners' vocabulary size would assist their reading recall of Level 4 units in the TMPV condition. For this purpose, we focused on the 19 participants in the TMPV group only. To determine the participants' estimated vocabulary size, the researcher first calculated the number of participants who passed each of the four vocabulary levels. As indicated by Table 6 the number of participants who passed each word level in the TMPV group ran as follows: 6 learners reached the Academic Words level as their highest level and 3 passed the 5000 word level maximum, while 4 learners passed the 3000 word level maximum, 4 passed the 2000 word level, and 2 failed to pass the 2000 word level. This finding demonstrated that 9 participants (47.4%) reached the Academic Word Level or above, whereas 10 participants (52.6 per cent) had an estimated vocabulary size of 3000 words or below.

TABLE 6
Results of the Vocabulary Levels Test in the TMPV Group (n =19)

Level	<i>M</i>	<i>SD</i>	<i>n</i>	Percent
Below 2000 words			2	10.53
2000 words	25.11	4.15	4	21.05

3000 words	20.47	5.54	4	21.05
Academic words	24.58	6.62	6	31.58
5000 words	12.79	7.24	3	15.79
Total			19	100

Note. Number (n) shows the number of participants who passed the level as the highest level they could attain.

Owing to limited sample size, large-group comparisons were not an option. We thus endeavored to group the 19 students in two sub-groups for analysis, namely Smaller Vocabulary Size Group (SVG) and Larger Vocabulary Size Group (LVG). The SVG contained the 10 participants who failed to pass the Academic Word level, while the LVG comprised of the 9 participants who successfully passed the Academic Word level. Results of the Vocabulary Levels Test indicated that students in the LVG possessed a larger vocabulary size than those in the SVG.

As Table 7 indicates, participants in the LVG outperformed those in the SVG in terms of the variables discussed; nevertheless, none of the differences reached levels of great significance, including the recall of Level 4 units. In this way, the results revealed that learners with a larger vocabulary size performed better than those with smaller vocabulary size as regards reading recall of phrasal verb units; yet, the difference did not reach the significance level. In this regard, size of the vocabulary knowledge did not significantly facilitate reading recall of Level 4 units in the TMPV group.

TABLE 7
Group Comparisons on the Recall of Pausal-Unit Propositions in TMVP Condition

	SVG (<i>n</i> = 10)		LVG (<i>n</i> = 9)		<i>Z</i>
	Mean Rank	Sum of Rank	Mean Rank	Sum of Rank	
Total Units Recalled	7.80	78.00	12.44	112.00	.079
Level 1	9.95	99.50	10.06	90.50	.968
Level 2	8.55	85.50	11.61	104.50	.243
Level 3	9.55	95.50	10.50	94.50	.720
Level 4	7.90	79.00	12.33	111.00	.095
Level 4 of Total Units Recalled	8.50	85.00	11.67	105.00	.243

DISCUSSION AND PEDAGOGICAL IMPLICATIONS

The two research questions addressed in this study aimed to discern the effect on EFL learners' reading recall of presenting phrasal verbs in reading texts, as well as the impact of vocabulary size in assisting learners' comprehension of a text containing a considerable number of phrasal verbs. To answer the first research question, we identified that high frequency of phrasal verbs hindered EFL learners' reading recall, particularly regarding the recall of Level 4 units. Yet, its deliberative effect did not extend to other proposition units. Generally speaking, this finding can be accounted for by the fact that the semantic ambiguity of phrasal verbs often causes reading difficulty to EFL learners. The meaning of phrasal verbs is usually less transparent, and it can hardly be determined by its parts (Folse, 2004). When meeting phrasal verbs, readers may get confused by the semantic opaqueness of the phrasal verbs, and fail to induce the contextually-appropriate meanings and misinterpret the written messages. Thus, they have more difficulty in comprehending, memorizing and retrieving propositions that contain a phrasal verb. This finding is consistent with most studies on phrasal verbs in the broad sense of phrasal verbs being difficult to EFL learners (Celce-Murcia & Larsen-Freeman, 1999; Folse, 2004). Yet, it should also be noted that the effect of phrasal verbs does not extend to impact non-phrasal-verb-embedding text propositions. This finding further expresses the fact that the presence of a semantically ambiguous lexical phrase only hinders interpretation and memorization of propositions in which a phrasal verb is embedded.

The effect of phrase verbs on reading recall of propositions containing phrasal verbs also demonstrates that teaching and learning phrasal verbs deserves pedagogical consideration in EFL contexts. Within such contexts phrasal verb instruction should be weighted in pedagogical scenarios. Ellis (2001, as cited in Nation, 2001) emphasized that language knowledge and language use are determined by the storage of lots of language chunks in long-term memory, and learners must know how these chunks co-occur with

one another. To EFL learners, learning phrasal verbs can help them not only to eschew miscomprehension in reading but also to draw closer to a native-like nature in their language production. To consolidate learners' knowledge of phrasal verb, teachers in EFL contexts may clearly present commonly-used phrasal verbs (e.g., *make up*, *break out of*, and *set up*) in language classes and also direct learners' attention to how these phrasal verbs are used in reading and listening materials.

To draw students' attention to phrasal verbs in language classes, Taiwo's (2004) ideas about how to teach collocations can be extended to shed light on how phrasal verbs can be taught both explicitly and implicitly. In the explicit aspect, teachers can present commonly used phrasal verbs (e.g., *make up*, *break out of*, and *set up*) in language classes and also direct learners' attention to how these phrasal verbs are used in reading and listening materials or by means of some lexical matching activities. Developing the habit of using dictionaries in learners (e.g., phrasal verb dictionaries) can also deepen students' knowledge of phrasal verbs. Regarding the implicit aspect, extensive reading and listening as a way to cultivate learners' knowledge of phrasal verbs should also be encouraged. When encountering a phrasal verb in reading, learners can be advised to first guess its meaning from the context, and may make use of phrasal verb dictionaries as a learning aid.

Our initial attempt in the current study has demonstrated that the presence of phrasal verbs hinders readers' recall of text messages. Given that the presence of phrasal verbs negatively impacted reading recall, the second attempt aimed to discuss whether having a larger vocabulary size would assist readers' recall in the TMPV group. As we have noted, although participants with a larger vocabulary size outperformed those with smaller vocabulary size, the insignificant difference encouraged us to conclude that size of vocabulary knowledge may not play a role in assisting EFL learners' recall of text propositions when they read texts with a high-frequency of phrasal verbs. This finding disproves our earlier hypothesis that having a large vocabulary size could facilitate the interpretation of phrasal verbs through lexical inferencing strategies. It further suggests that in phrasal verb

instruction teachers and learners should go beyond expanding breadth of vocabulary knowledge and may focus on the teaching of phrasal verbs directly. Yet, in consideration of the limited number of participants in both groups, we understand that this result may change as long as the group sizes increase. In this regard, we are more inclined to consider this conclusion temporary in this exploratory study, and more future studies are needed to clarify the question of whether vocabulary size assists comprehension of phrasal verbs in reading.

CONCLUSIONS

Languages abound in formulaic chunks and phraseological expressions which are marks of the competence of native speakers; however, language learners find these fixed expressions, though highly productive, very difficult to master (Howarth, 1998; Nation, 2001). The main purpose of this study is to shed new light on the study of phrasal verbs in reading comprehension, which is a slightly neglected issue in SLA research and thus deserves more experimental research to provide valuable insights regarding its impact on learners' processing of reading texts. The findings of our study were consistent with most past studies on phrasal verbs that claim for the difficulty of phrasal verbs to EFL learners (e.g., Celce-Murcia & Larsen-Freeman, 1990; Folse, 2004). We discovered that phrasal verbs would mostly hinder readers' recall of the propositions containing a phrasal verb. We have further identified that vocabulary size did not directly influence learners' ability to comprehend phrasal verb propositions of a reading passage. Moreover, the pervasiveness of phrasal verbs in daily communications and the difficulties presented by them have motivated us to say with confidence that phrasal verbs should be taught and learned in English language education so that we further provide some pedagogical recommendations regarding how phrasal verbs can be taught both explicitly and implicitly.

Every study has its own limitations and the current study is limited in the

following areas. First, since this study is an exploratory study, only the data collected from 45 Taiwanese learners were analyzed and discussed to address the two research issues. Due to the limited subject pool in this study, we recognize that a larger population of participants would enhance the generalisability of this research, and so future research may focus on a large-scale study. Second, as an exploratory study in this research issue, we only studied size of vocabulary knowledge and left depth of vocabulary knowledge untouched. However, considering the importance of depth of vocabulary knowledge in L2 reading (Anderson and Nagy, 1992; Nassaji, 2006; Qian, 1999, 2005), we argue for the need to focus on learners' depth of vocabulary knowledge in future research as well.

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APPENDIX A

The Vocabulary Levels Test

Sample items from Schmitt et al. (2001)

1.	copy		
2.	event	_____	end or highest point
3.	motor	_____	this moves a car
4.	pity	_____	thing made to be like another
5.	profit		
6.	tip		
1.	accident		
2.	debt	_____	loud deep sound
3.	fortune	_____	something you must pay
4.	pride	_____	having a high opinion of yourself
5.	roar		
6.	thread		