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L2 Collocational Knowledge by Congruency and Writing Proficiency of EFL University Learners

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While less research has been conducted on the relationship between L2 collocational knowledge and L2 writing proficiency, the purpose of the present study was to examine the relationship between L2 learners' collocational knowledge and L2 writing ability. A receptive collocation test, counterbalanced for incongruent and congruent collocations, and adjective-noun (AN) and verb-noun (VN) collocations, was developed by matching normalized frequencies of the collocation items from the Corpus of Contemporary American English (COCA). When 68 university freshmen learners were tested for collocational knowledge and writing proficiency, they were found to have more problems with the incongruent collocations, but congruent AN collocations resulted in higher error rates than the incongruent AN collocations at a significant level. As in previous studies, the learners were found to experience more difficulty in acquiring incongruent collocations, but more noticeably, knowledge of synonymous collocates in the AN collocations was found to be another source of difficulty. With hierarchical multiple regression, the study also indicated collocational knowledge to be the primary significant contributor of L2 writing proficiency. The study underscores the importance of teaching collocations to help learners retrieve them more automatically in the process of L2 writing.

[congruent collocations/incongruent collocations/congruency/writing proficiency/ synonymy]

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I. INTRODUCTION

The importance of multiword units for L2 learners can no longer be denied. While the knowledge of single lexical items has been recognized as a prerequisite to the knowledge of multiword items, the knowledge of the latter has not been found to be automatic (Kim, 2004; Schmitt & Carter, 2004). Previous studies on the representation and processing of multiword units, such as collocations, have found formulaic sequences to be stored and retrieved as a whole in language use and offer processing efficiency (Kim, 2011; Schmitt & Carter, 2004; Schmitt & Underwood, 2004). As such, holistic representation and processing can be claimed to contribute to efficiency of language processing both in comprehension and production. Findings of recent empirical studies have confirmed that the processing of formulaic sequences is faster (Conklin & Schmitt, 2008; Jiang & Nekrasova, 2007) and more accurate (Jiang & Nekrasova, 2007) than nonformulaic sequences. For reading, learners may be able to comprehend texts more quickly by predicting upcoming words to retrieve meaning in a fixed phrase. Also, the learners' knowledge of formulaic sequences have been found to expedite the reading process (Conklin & Schmitt, 2008; Martinez & Murphy, 2011; Underwood, Schmitt, & Galpin, 2004) to support the evidence that formulaic sequences have a processing advantage over nonformulaic sequences due to the holistic processing of the former. In L2 writing, less cognitive effort may be expended since fixed expressions may be readily available for production as a prosodic unit. In fact, there are corpus-based studies within this area (Altenberg & Granger, 2001; Chon & Shin, 2009; Laufer & Waldman, 2011; Nesselhauf, 2003, 2005; Siyanova & Schmitt, 2008) for examining the relationship between the knowledge of multiword items and L2 writing, but they are at fault for allowing the learners' use of avoidance strategies. When learners are permitted the use of avoidance strategies, a communication strategy (Dörnyei, 1995; Færch & Kasper, 1983) employed to circumvent a lexical gap problem during the process of writing, the writing products will only offer partial views on the learners' lexical proficiency, which includes the ability to retrieve collocations. As such, there is need for empirical evidence to support that the knowledge of multiword sequences, assessed via a collocation test, is a precondition for proficient L2 writers.

In the context of the present study, a particular type of multiword unit—collocations—is the focus of the study. Collocations consist primarily of open class items, such as *high salary, strong tea*, and *throw a party*. For example, 'heavy' not only collocates with *traffic* but also with *stone* and *smoker*, while *in front of* makes a unit in which the constituent words cannot be replaced by another (Schmitt & Carter, 2004). Some restricted co-occurrence of multiword items are as follows: *tea* collocates with *strong* but not with *powerful*, *discussion* collocates with *hold* or *have* but not with

deliver, and *speech* collocates with *deliver* but not with *hold* (Laufer & Waldman, 2011). In fact, collocations can be distinguished by congruency: congruent collocations vs. incongruent collocations. For instance, Korean speakers of English would say *do* a party* rather than *give a party*, or say *do a job* for *ireur hada* (do a job). The former collocation is the case of an incongruent collocation which may be difficult for learners to acquire due to mismatches between L1 and L2 lexical components. The latter is a congruent collocation whose lexical components are similar between L1 and L2. In the present study, collocation congruency (i.e., congruent vs. incongruent) with different combinatory parts of speech (i.e., adjective-noun vs. verb-noun) were of interest to see how the knowledge of collocations may be facilitative or debilitative to L2 writing ability.

The purpose of the study is threefold: One is to examine how learners' knowledge of collocations is represented for different collocation congruency and combinatory parts of speech. Another was to seek the relationship between L2 collocational proficiency and L2 writing ability. To conclude, there was a comprehensive analysis by ascertaining the contribution of different forms of vocabulary knowledge (i.e., single word items, collocations) to learners' L2 writing ability.

II. BACKGROUND

1. The Nature of L2 Collocational Knowledge

Different researchers have used different explanations to define collocational knowledge so that there is not one simple and precise definition. Nation (2001) seems to include under the term 'collocations' most multiword units, including idioms (e.g., *kick the bucket)* and fixed expressions (e.g., *to and fro, leap year*). Boers, Eyckmans, Kappel, Stengers, & Demecheleer (2006) explain collocations as one type of multiword expressions, other types being fillers (e.g., *sort of*), functional expressions (e.g., *excuse me*), idioms (e.g., *back to square one*), proverbs (e.g., *let's make hay while the sun shines*), and standardized phrases (e.g., *There' a growing body of evidence that*) (p. 246).

While the job of defining collocations still remains challenging, a review on the nature of collocations may help to understand the process of acquiring collocations. One unique feature of collocations is that there is flexibility of their component words in recombining to form other collocations (Nation, 2001; Yamashita & Jiang, 2010). As a result, the collocation will be less salient to the learner, and unless noticing is initiated by another, the item is likely to be treated as a regular phrase. A possible result is that the learners will combine words liberally, often producing inappropriate collocations.

Another unique feature of collocations is that the cross-linguistic nature will make learning particularly susceptible to first language (L1) influence. The results may be facilitative when a collocation shares the same lexical items between the learners' L1 and L2, but inhibitory when lexical components are different between the learners' L1 and L2. Part of this difficulty may also lie in the fact that some collocational patterns cannot be explained by simple explicit rules (Yamashita & Jiang, 2010) since collocation congruency is to a large extent arbitrary where the knowledge of each single lexical item will not necessarily result in the acquisition of lexical combinations (Wolter, 2006). It is these unique features of collocations that will hold difficulties for learning.

To understand how L2 collocations are processed, studies in the area of L2/bilingual mental lexicon have demonstrated that L2 lexical items are processed via mediation of the L1 lexicon, even at advanced levels of L2 proficiency (Kroll & Stewart, 1994; Jiang, 2004; Yamashita & Jiang, 2010). This finding plausibly explains that learners depend on L1 lexical connections to process L2 collocations. That is, similarities between L1 and L2 collocations may facilitate, and discrepancies may hinder the acquisition of collocations so that unusual collocations may be produced by L2 learners when they rely too heavily on L1 collocational knowledge.

In a similar vein, Wolter (2006) has claimed that L1 lexical/conceptual knowledge may allow L2 learners to make some sound assumptions of the acceptable collocations if they are lexically equivalent to their L1. On the other hand, the lexical network will need to undergo fundamental restructuring in order to lexically or conceptually modify its existing mental lexicon where there is a significant difference between L1 and L2 lexical items in the representation of a specific concept. For instance, Wolter points out that a dog can be described as *furry* in English. He goes onto explain that it is less likely for a dog to be described as *fuzzy* or *frizzy*, although conceptually there is no reason why these would not be allowed. If the learner's L1 makes use of collocations such as *fuzzy* or *frizzy*, but does not make use of *furry*, then the learner's L2 lexicon is expected to undergo restructuring in order to accommodate the idiosyncrasy between the two languages.

To empirically seek how collocation congruency may have an effect on the L2 learners' lexical ability to retrieve the appropriate collocations, Yamashita and Jiang (2010) investigated L1 influence on the acquisition of L2 collocations by comparing the performance among native speakers of English, Japanese ESL learners, and Japanese EFL learners through a collocation test (i.e., a phrase-acceptability judgment task). The study found the EFL learners making more errors on incongruent collocations than congruent collocations. ESL learners generally performed better than EFL learners (lower error rate), but were found to still make more errors on incongruent collocations than on congruent collocations. The results suggested L1 congruency effect on the

acquisition of L2 collocations, but that it is difficult to acquire incongruent collocations even with a considerable amount of exposure to L2. The researchers speculated that once L2 collocations are stored in memory, they are processed independently of L1.

Wolter and Gyllstad (2011) also investigated the effects of congruency and incongruency on collocational processing. They used a primed lexical decision task to investigate whether or not the presentation of a verb prime was more likely to facilitate faster recognition of a (object) noun target if the resulting verb + (object) noun collocation was congruent versus incongruent. Participants included native speakers (NSs) of English as well as advanced non-native speakers (NNSs) of English (i.e., L1 Swedish), and the results showed for the NNSs that they responded significantly faster to the congruent items over the incongruent items. The authors reached a similar conclusion to that of Yamashita and Jiang's (2010) study: Incongruent collocations are harder to acquire than congruent collocations, but, once acquired, they can be processed as efficiently as congruent collocations. Nonetheless, the overall conclusion that can be drawn collectively from these studies is that there seems to be a processing advantage afforded to L2 learners for congruent collocations over incongruent collocations, which again suggests that congruency benefits may extend beyond single word items and be applied to larger lexical sizes, such as collocations.

Similarly, Kim (2012) investigated the influence of L1 on 111 Korean high school learners' knowledge of 16 adjective-noun and 18 verb-noun English collocations. The collocation tests involved both congruent and incongruent collocations (17 each). In order to examine how confusion arising from synonymy affects the acquisition of congruent collocations, synonyms were given as choices for congruent collocations. The results showed that although synonymy interfered with their choices for congruent collocations, incongruent collocations were more difficult to acquire. In addition, there existed a significant difference in the learners' knowledge of adjective-noun and verb-noun collocations in terms of their vocabulary size and general language proficiency. The different vocabulary sizes of the learners led the more proficient learners to outperform the less proficient learners whereas a greater difference was found between the groups according to general proficiency than when compared by vocabulary sizes.

2. Collocational Knowledge and L2 Writing

The importance of collocational knowledge has been pointed out in numerous studies within the contexts of teaching and learning collocations (Chan & Liou, 2005; Sonbul & Schmitt, 2013; Webb & Kagimoto, 2009; Webb, Newton, & Chang, 2013), but interest in researching the relationship between the knowledge of collocations and L2 writing performance has been less common. Those conducted have been mostly within the area

of corpus-based studies to examine the acquisition of collocations by L2 learners (Altenberg & Granger, 2001; Chon & Shin, 2009; Hsu, 2007; Laufer & Waldman, 2011; Li & Schmitt, 2009; Nesselhauf, 2003, 2005; Siyanova & Schmitt, 2008), however, in which the writing tasks allowed avoidance so that the collocations identified in the studies lack validity in being a measure of the learner's collocational proficiency.

To corroborate the important role of collocational knowledge in L2 writing, Alternberg and Granger (2001) report on EFL learners' use of high-frequency verbs, in particular with the use of the verb 'make.' While the use of 'make' was categorized into eight categories, the examples were in fact related to the identification of multiword sequences (e.g., make furniture, make a distinction, make sth possible, make a fortune). Learner data was compared with native-speaker data, and results showed that EFL learners, even at high proficiency levels, had great difficulty with phrasing expressions that included the high-frequency verb 'make.' Nesselhauf (2003) analyzed collocations of learner corpus at the advanced German-speaking learners of English. The learners were examined on the use of verb-noun collocations (e.g., *take a break* or *shake one's head*) in free written production. The types of mistakes that the learners made when producing collocations were identified, and the influence of the degree of restriction of a combination and of the learners' L1 on the production of collocations was investigated. While the degree of restriction emerged to have some impact on the difficulty of combinations for the learners, the degree to which the learners' L1 influenced the production of collocations was far more than predicted, and points to the important role of L1-L2 differences. Hsu (2007), in her study of Taiwanese EFL learners' online writing scores and their use of seven types of lexical collocations found that their online writing scores had a significant correlation with frequency and types of lexical collocations, specifically where a strong correlation was found in their use of adjective-noun and verb-noun collocations.

In another study on the learners' production of collocations, Laufer and Waldman (2011) investigated learners' production of collocations by comparing to the corpus of young native-speakers (i.e., LOCNESS corpus). The data revealed that the learners even at different proficiency levels produced far fewer collocations than native-speakers, that the number of collocations increased only at the advanced level, and that errors, particularly interlingual ones, continued to persist even at advanced levels of proficiency.

While assessing 30 student writing products, Chon and Shin (2009) explored the connection between the writers' use of collocations and the rater's perception to investigate the saliency of collocations when the raters were asked to assign analytic scores to the students' compositions. The results of the study indicated that raters were assigning higher scores to compositions that included a larger number of collocation types rather than to compositions that produced higher lexical sophistication levels. The

study underscores the significant role of collocational knowledge for improved L2 writing ability.

In comparison to the corpus-based studies, the present study adopted an empirical approach by measuring the learners' error rates on the receptive collocation test and obtaining scores for the L2 learners' writing products. Since the collocation items could be prepared beforehand according to the theoretical interest in L1-L2 differences, the study may provide a clearer explanation on the possibility of L1 influence. With the aforementioned interests, the following research questions were posed to guide the study:

Q1: What is the L2 learners' receptive collocational proficiency by the congruency and different combinatory parts of speech of collocations?
Q2: How does the learners' L2 receptive collocational proficiency relate to their L2 writing proficiency?
Q3: How do the learners' different aspects of vocabulary knowledge (i.e., consisting of receptive and productive single word items, and receptive knowledge of collocations) contribute to learner's L2 writing ability?

III. RESEARCH METHODS

1. Participants and Settings

A total of 68 students at a university in Seoul participated in the current study. They were English freshmen who were taking "English Grammar" in the spring semester, 2013. The group consisted of 32 male and 36 female students and their age ranged from 19 to 23, but most of them (96%) were within the range of 19 through 21 and had received at least nine years of formal English instruction. There were five Chinese students in the class, but they were excluded from the data analysis since they did not represent Korean university students.

2. Instruments

1) Receptive Collocation Test (RCT)

To measure the students' receptive collocational knowledge, a receptive collocation test was developed based on the collocation tests used in previous studies (i.e., Kim, 2012; Jung, Park, & Kim, 2010; Jung, Sur, & Kim, 2007); and the collocations presented in *English Collocation in Use* by McCarthy and O'Dell (2005) and *Teaching Collocation*

by Lewis (2000). For the collocations, only two combinatory parts of speech structures (i.e., verb-noun and adjective-noun collocations) were chosen for the test items and they were checked whether they were listed in *Macmillan Collocations Dictionary for Learners of English* (2010) and *Oxford Collocations Dictionary for Students of English* (2010). Thereafter, the collocations were grouped by collocation congruency (i.e., whether two languages share the same or have different word combinations to express the same concept). To analyze and identify collocation congruency, each lexical item in the collocation was translated to Korean using two Korean-English dictionaries. Also, the collocations were checked to see whether the translations of the collocations existed in the *21st Century Sejong Project*, one of the most comprehensive Korean Corpora. They were also cross-checked by five native speakers of Korean who were in the graduate program at the university to examine the congruency of the collocations. Once after the translations of the collocations were found in the *21st Century Sejong Project* and confirmed by five native speakers of Korean, they were identified as being either congruent or incongruent.

As a result, 95 test items were selected and categorized into four collocation types: congruent verb-noun (CVN), incongruent verb-noun (IVN), congruent adjective-noun (CAN), and incongruent adjective-noun (IAN) collocations. The items were pilot-tested on 35 university students for removal or modification, if deemed necessary. That is, if the percentage of correct answers for the items was 100 or near 100, the items were removed from the test since they could be regarded as being already familiar to Korean EFL learners. For example, items such as *high position*, *tall woman*, *tall tree*, *close friend*, *near future*, *big issue*, *finish homework*, and *take medicine* were removed from the test due to their high familiarity and easiness. In addition, the normalized frequency of the items (i.e., frequency per million, FPM) was identified using the Corpus of Contemporary American English (COCA) (Davies, 2008-2012) where after the items were paired with the matching items of similar frequencies within each collocation type. For example, CVN items were closely matched with IVN items, and CAN items with IAN items to minimize the influence of any external factors other than the congruency effect. The items that could not be paired by FPM were removed from the test and with elimination, eight items were respectively left for CAN and IAN collocations, and 11 items respectively for CVN and IVN collocations, totaling 38 test items. The total mean of FPM for CAN and IAN items were respectively 0.46 and 0.46, and 1.92 and 2.02 respectively for CVN and IVN items.

In presenting the prompts in the collocation test, the researchers tried to control the vocabulary level to be within the most frequent 1,000 words and to keep the structures of the prompts as simple as possible. In addition, “Don’t know” (잘 모르겠음) was added in the choices of each question to prevent the test-takers from simply guessing an answer

(see Figure 1). Finally, the key answers of the test items were verified by five native speakers of English who had earned a master degree in the field of language or language teaching and who were teaching English courses at the university at the time the research was being conducted.

FIGURE 1

Sample Test Item on the Receptive Collocation Test

1. A [ ] decision could take months.
   ① last ② final ③ 잘 모르겠음
2. Smoking often [ ] harmful effects on the skin.
   ① has ② gives ③ 잘 모르겠음

2) ESL Composition Profile

In evaluating the students' writing proficiency, Jacobs et al.'s (1981) ESL Composition Profile was utilized in the current study to assess the students' writing products (see Table 1).

TABLE 1

ESL Composition Profile

	Range of scores	Criteria descriptors
Content	30-27 (excellent to very good) 26-22 (good to average) 21-17 (fair to poor) 16-13 (very poor)	knowledgeable, substantive, thorough development of thesis, relevant to assigned topic
Organization	20-18 (excellent to very good) 17-14 (good to average) 13-10 (fair to poor) 9-7 (very poor)	fluent expression, ideas clearly stated/supported, well-organized, logical sequencing, cohesive
Vocabulary	20-18 (excellent to very good) 17-14 (good to average) 13-10 (fair to poor) 9-7 (very poor)	sophisticated range, effective word/idiom choice and usage, word form mastery, appropriate register
Language Use	25-22 (excellent to very good) 21-18 (good to average) 17-11 (fair to poor) 10-5 (very poor)	effective complex construction, agreement, tense, number, word order/function, articles, pronouns, prepositions
Mechanics	5 (excellent to very good) 4 (good to average) 3 (fair to poor) 2 (very poor)	spelling, punctuation, capitalization, paragraphing, handwriting

Being one of the most commonly used rubrics for analytic assessment, the scale consists of five major components: content, organization, vocabulary, language use, and mechanics. Each category has four different levels from 'very poor' to 'excellent to very good' and the range of scores varies according to each category.

3) Receptive and Productive Vocabulary Size Test

The students' tests scores of receptive vocabulary and productive vocabulary size were also obtained to be used in the regression analysis. In order to measure the students' receptive vocabulary size, the Receptive Vocabulary Size Test (RVST, hereafter) developed by Shin, Chon and Kim (2011) was used in the current study. It was adapted from Nation's Vocabulary Size Test (VST, hereafter) which was designed to provide a reliable and comprehensive measure of a learner's vocabulary size from the 1st 1,000 to the 14th 1,000 word families of English based on the frequency list of British National Corpus (BNC) (Nation & Beglar, 2007). The RVST utilized in the current study covers only 1st 1,000 through 10th 1,000 word levels and does not cover the words above the 10th 1,000 word level on the ground that most EFL learners do not allegedly have the vocabulary size of more than 10,000 words. Also, Shin et al.'s (2011) RVST is a version where the influence of any loanwords of English used in Korean have been eliminated.

To measure the students' productive vocabulary size, the Productive Vocabulary Size Test (PVST, hereafter) designed by Shin et al., (2011) was used in the current study. Their test followed the format of Laufer and Nation's (1999) vocabulary size test of controlled productive ability, which was designed to measure the learners' productive vocabulary size. Unlike the Laufer and Nation's test, they provided L1 translations in each item in the test, helping learners recall target words through L1 translations rather than the context of L2 sentences.

3. Procedures

The Receptive Collocation Test (RCT) was administered to 68 English freshmen during regular class time at the beginning of the Spring Semester, 2013. The students were given 30 minutes to answer the questions, and they were instructed not to guess but to choose "I don't know" when they did not know the answers to the questions in the RCT. In the following class, the RVST and PVST were conducted to measure the students' vocabulary sizes, and the scores at each band (i.e., $1^{st} \sim 10^{th}$ word levels) were multiplied by a 100 to represent the learners' vocabulary size by which the total scores for RVST and PVST were calculated. Thereafter, the students were instructed to write an essay of 300-to-350 words in 60 minutes in the first class in the following week. The

writing prompt used is as follows:

> *In your opinion, what is the most important characteristic (for example, honesty, intelligence, a sense of humor) that a person can have to be successful in life? Use specific reasons and examples from your experience to explain your answer. When you write your answer, you are not limited to the examples listed in the question.*

They were also informed in advance that the results of the test and their writing would only be used for diagnostic and research purposes so that they would not influence their grades. Meanwhile, to prevent their potential negligence in performing the writing tasks, they were notified that feedback on the five components (i.e., content, organization, vocabulary, language use and mechanics) of their writing would be provided, through which their L2 writing skills could be improved.

After the students' essays were obtained, they were scored by the two native instructors at the university who had earned a master's degree in the field of language teaching. They were trained to use the ESL Composition Profile in assessing the students' essays in advance by one of the researchers who has earned a doctoral degree in the field of L2 writing. The two raters in the end showed high interrater reliability (r=.91) in scoring the students' essays.

4. Data Analysis

Data produced from the study were computed using SPSS (Statistical Package for Social Sciences) 21.0. Descriptive statistics was obtained to analyze the students' scores on the RCT, and the results were calculated for error rates of each item. The error rates were also submitted for paired t-tests to seek any differences between congruent and incongruent collocations, and also between AN and VN collocations. To investigate the relationship between collocational proficiency and the L2 writing ability of the participants, one-way ANOVA was conducted. The learners' scores obtained via the RCT (categorized into high, mid, and low proficiency groups) was set as the independent variable while the learners' L2 writing scores (Total = 100 points) was entered as the dependent variable. To conclude, an all-inclusive analysis on the relationship between the learners' knowledge of single lexical items obtained via RVST and PVST, collocational knowledge and L2 writing scores was conducted with hierarchical (sequential) multiple regression. While it has been found for the most part that vocabulary knowledge is a sub-construct of L2 writing ability, the analysis aimed to explore how different types of vocabulary knowledge, that is, receptive and productive

knowledge of single lexical items, and collocational knowledge explained for the variance in L2 writing proficiency.

IV. RESULTS AND DISCUSSION

1. L2 Learners' Receptive Knowledge of Collocations

This section deals with RQ1 to examine the learners' performance in the receptive collocation test. As mentioned previously, the test was designed so that we were able to assess the learners' knowledge of collocations for collocation congruency (i.e., congruent vs. incongruent) and different combinatory parts of speech (i.e., adjective-noun, verb-noun). Error rates were utilized to observe the learners' success in retrieving the missing collocates for each of the items in the collocation test.

1) Collocations by Congruency

Observation of different error rates according to collocation congruency indicated lower error rates for congruent collocations (Error rate = 0.25) than incongruent collocations (Error rate = 0.30) at a significant level ($p < .01$) (see Table 2). The lowest error rate evidenced for congruent collocations, such as, in the items for 'obtain*/gain weight' (Error rate = 0.02) and 'small*/low confidence' (Error rate = 0.03). In comparison, the incongruent collocation 'did/gave*(some) damage' which would be equivalent to *pihereur juda* (give damage) in Korean, produced an error rate as high as 0.73. This suggests that the similarity of the lexical components in the L1 and L2 collocations may have helped the learners find the target collocates whereas the word choices for the incongruent collocations may have caused more confusion than the congruent collocations (Jiang, 2004; Wolter & Gyllstad, 2011; Yamashita & Jiang, 2010).

TABLE 2
Error rates by Collocation Congruency

(n = 62)	Mean	SD	t	df	Sig.
• Incongruent Collocations (19)	0.30	0.14	3.08	61	.003**
• Congruent Collocations (19)	0.25	0.13			

Note: **p < .01; ( ) indicate number of collocations

Another explanation for collocation congrueny, according to Wolter (2006), is that the L1 lexical/conceptual knowledge may allow L2 learners to make easier assumptions of

the acceptable collocations, whereas the learners' mental lexicon will need to undergo fundamental restructuring if there is significant difference between L1 and L2 lexical items in the representation of a specific concept. This indicates that the word choices presented in the options for the incongruent collocations may have been more confusing due to the mismatches between the L1 and L2 collocations. However, there was need to check on this simplistic view since previous research (Kim, 2012; Jung, Park, & Kim, 2010; Jung, Sur, & Kim, 2007) has found that retrieving the lexical combinations for congruent collocations can be just as confusing when the learners are conditioned to choose from synonymous collocates. We suspect that, when collocational knowledge is not firmly established, the mental lexicon will find itself competing between synonymous words to form the most appropriate lexical combination. The next logical stage of analysis was to study the error rates of the 'adjective - noun' (AN) and 'verb - noun' (VN) collocations.

2) Collocations by Part of Speech

Examination of collocations by part of speech indicated that the VN collocations (Error rate = .32) had been harder to retrieve than the AN collocations (Error rate = .23) at a significant level ($p < .001$) (see Table 3).

TABLE 3

Error rates by Parts of Speech

(n = 62)	Mean	SD	t	df	Sig.
• 'Adj + Noun' Collocations (16)	0.23	0.15	-4.45	61	.000***
• 'Verb + Noun' Collocations (22)	0.32	0.13			

Note: *** $p < .001$; ( ) indicate number of collocations

Examination of total mean error rates for the VN collocations indicates that the incongruent collocations (Error rate = 0.41) had caused more difficulty than the congruent collocations (Error rate = 0.23) ($p < .001$) (see Table 4). For instance, the incongruent VN collocation as in 'do*/fix a breakfast' (Error rate = .82) had been most problematic to the learners, which indicates that less than 20% of the students had been able to find the target verb. To express 'fix a breakfast,' a Korean speaker would most likely retrieve *achimeul junbihada* (prepare breakfast) in L1.

Also, other incongruent VN collocations that had been problematic were 'paid homage' (Error rate = 0.79) and 'did damage' (Error rate = 0.73). That is, the L1 equivalent for 'pay homage' would be *chamyehada* (do worship), and 'do damage' would be *sonhaereur ipida* (inflict damage). Comparisons of the lexical components in

the L1 and L2 incongruent VN collocations suggest that the mismatches between them were most likely the source of difficulty. With these kinds of instances, Williams and Cheung (2011) demonstrate that aspects of meaning that are context dependent, such as collocates, are not transferred from L1 but need to be learned through experience with the L2. They noted that newly learned words rapidly access meaning, but do not necessarily inherit all of the semantic information related to translations with which they were paired during learning.

TABLE 4

Verb-Noun Collocations by Error Rate

Congruent Collocations			Incongruent Collocations		
Verb + Noun	Mean	SD	Verb + Noun	Mean	SD
obtain*/gain weight	0.02	0.13	did*/made a contribution	0.08	0.27
grow*/raise children	0.05	0.22	do*/have a debate	0.10	0.30
get/know* your point	0.08	0.27	did*/made an effort	0.10	0.30
achieved/fulfilled* success	0.13	0.32	do*/have a try	0.16	0.37
end/finish* the crisis	0.19	0.40	keep/have* the change	0.24	0.43
provided/supplied* care	0.23	0.42	do/give*(more) harm	0.42	0.50
extend/expand* (their) lives	0.26	0.44	paid/did* a visit	0.53	0.50
obtained/gained* data	0.26	0.44	do*/give a party	0.55	0.50
extend*/expand production	0.32	0.47	did/gave* (some) damage	0.73	0.45
started/began* crying	0.48	0.50	gave*/paid homage	0.79	0.41
provide*/supply (households) with gas	0.50	0.50	do*/fix a breakfast	0.82	0.39
Total Mean Error Rate	0.23	0.14	Total Mean Error Rate	0.41	0.18
t = 7.954, df = 61, p = .000***					

Note: ***p < .001

According to Schmitt and Carter (2004), an extended example of this is that an L2 learner may be aware that ‘blond’ collocates with ‘hair’ (blond hair), but this will not necessarily lead to the knowledge that ‘blond’ cannot collocate with ‘paint’ (*blond paint) even if it sounds logical. Many of these collocations must be based solely on pattern recognition, because there is often no semantic reasoning behind acceptable/nonacceptable pairings. However, in pedagogy, these collocations will normally be taught only for the possible cases, and probably not for inappropriate combinations.

For the AN collocations, while it was predicted that the learners would have more problems with the incongruent collocations due to the mismatches between the lexical components in L1 and L2 collocations, the results on the contrary showed higher total mean error rates for the congruent AN collocations ($p < .01$) (see Table 5). As mentioned

previously, the receptive collocation test had been developed so that synonyms were presented as distracters for the congruent collocations, and this is likely to have caused extra confusion for the learners when trying to retrieve the target collocates.

When the individual AN congruent collocations were scrutinized for their problematicity, 'fast*/quick temper' was observed as producing the highest error rate of .47 (see Table 5). 'Fast' and 'quick', that were presented as distracters and synonyms, are expected to have caused a word confusion problem. Conceivably, this would have occurred since 'quick' and 'fast' are both equivalents of '*ppareun'* in L1. Another congruent AN collocation that was a source of difficulty was 'wide variations' resulting in an error rate of .42. While translations for both 'wide' and 'broad' are generally retrieved as '*neolbeun*' in Korean, it is likely that the learners will have relied on their intuitive sense of what sounds right. In a similar vein, Kim (2012) found the low level learners to record a group difference of more than 10% to those of the higher proficiency group, and this occurred noticeably for the congruent collocations (i.e., *a close/near* friend*, *a fast*/quick look*, *a small/little* world*, *a far*/long way*, *tell/speak* a lie*, *say*/tell one's story)*.

TABLE 5

Adjective-Noun Collocations by Error Rate

Congruent Collocations			Incongruent Collocations		
Adj + Noun	Mean	SD	Adj + Noun	Mean	SD
small*/little confidence	0.03	0.18	strong*/heavy drinker	0.08	0.27
nice/good* apartment	0.13	0.34	strong*/heavy smoker	0.08	0.27
fast*/quick comment	0.16	0.37	strong*/heavy rain	0.08	0.27
real/true* dilemma	0.24	0.43	thick/strong* fog	0.13	0.34
last*/final decision	0.31	0.46	thick/strong* soup	0.19	0.40
wide/broad* outline	0.37	0.49	big/much* meal	0.24	0.43
wide/broad* variations	0.42	0.50	thick*/strong coffee	0.32	0.47
fast*/quick temper	0.47	0.50	thick*/strong tea	0.42	0.50
Total Mean Error Rate	0.27	0.19	Total Mean Error Rate	0.19	0.18
t = -2.81, df = 61, p = .007**					

Note: **p < .01

The case of the incongruent AN collocation as in 'thick*/strong tea' produced an error rate of .42. 'Thick' when considered together with 'strong' will have been confusing to the learners since 'thick' refers to *jinhada* as in when 'a type of liquid is high in concentration.' Similarly, 'strong' of 'strong tea' would have meant that it is rich in some active agent in L1 (Definitions retrieved from http://www.merriam-webster.com/). The type of problem may have occurred when the knowledge of single lexical items (i.e., thick, strong) does not automatically transfer to the learning of collocations and their

restrictions (Schmitt & Carter, 2004).

The results for the congruent AN collocations suggest that when the collocation test was developed in a way where there was presentation of synonymous collocates, they became the source of confusion (Liu, 2013). Contrary to the simplistic view that mediation via L1 will help L2 learners perceive L2 collocations, the synonymous collocates became the source of difficulty for L2 learners (Kim, 2012). This may also explain that this is a case where collocational knowledge has not been firmly established in the learners' mental lexicon. That said, Yamashita and Jiang (2010) have suggested that the acquisition of collocations may be related to the amount of input that the learners experience. The researchers suggest that once collocations become stored in memory, L2 collocations will be processed independently of L1, and this is expected to be a characteristic of the more proficient learners.

A noteworthy observation was additionally made with the incongruent AN collocations. Among them, the learners seemed to be more familiar with some of the collocations than others. This may have been an extraneous variable that was beyond the researchers' control because we later found that the specific collocation 'heavy rain' had appeared more than 30 times in the textbook corpus of the 7th Revised National Curriculum of English that the participants had used for their learning of English. This may be a case for which sufficient input has occurred. 'Heavy rain' produced a relatively low error rate of 8% together with collocations, such as, 'heavy smoker' and 'heavy drinker.' Although 'heavy smoker' and 'heavy drinker' have not appeared in the textbooks, familiarity with 'heavy rain' may have helped the learners come up with appropriate combinations. In fact, Kim (2012) also found that the learners to be more familiar with some collocations, such as *a strong*/heavy drinker* and *do*/take a break*, regardless of the learners' proficiency levels, and she attributed this to the learners' frequent exposure to specific collocations.

2. L2 Receptive Collocational Proficiency and Writing Proficiency

RQ 2 involved examining the relationship between collocational proficiency and L2 writing ability of university learner participants. One-way ANOVA was conducted with the learners' scores (i.e., error rates) on the collocation test as the independent variable, categorized into high, mid, and low groups. The learners' L2 writing scores (Total = 100 points) were submitted as the dependent variable. The descriptive statistics is illustrated in Table 6, and the learners' L2 writing proficiency was significantly different according to the groups ($F_{(2, 60)}$ = 19.643, p = .000). Not surprisingly, the learners exhibiting the lowest error rates on the collocation test recorded the highest mean writing score of 91.14.

TABLE 6

Collocational Proficiency (Error rate) and L2 Writing Proficiency

				95% Confidence Interval for Mean			
	N	Mean	SD	Lower Bound	Upper Bound	Min	Max
1	18	91.14	4.40	88.95	93.33	82.50	98.00
2	26	83.52	11.23	78.98	88.05	60.00	97.00
3	17	72.41	8.27	68.16	76.66	52.50	90.00
Total	61	82.67	11.31	79.78	85.57	52.50	98.00

Note: 1 = High, 2 = Mid, 3 = Low

Post-hoc multiple comparisons for the writing scores indicated that there were statistical differences between the groups: high-mid (p = .021), high-low (p = .000), and mid-low (p = .001) (see Table 7). This indicates that the learners' collocation proficiency, was highly relevant to the learners' performance on L2 writing. For instance, the mean difference between the high-low collocational proficiency groups indicated that this was equivalent to a writing score increase of 18.727 points for the high proficiency group. Plausibly, this indicates that the learners' ability to retrieve multiword expressions can be considered a component of proficient L2 writing ability, and that collocational proficiency is a prerequisite for L2 writing performance.

TABLE 7

Multiple Comparisons for Collocational Proficiency and L2 Writing Proficiency

(I) Collocational Proficiency (Binned)		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	7.620	2.723	.021*	0.906	14.333
	3	18.727	3.004	.000***	11.322	26.132
2	1	7.620	2.723	.021*	14.333	0.906
	3	11.107	2.770	.001**	4.278	17.937
3	1	18.727	3.004	.000***	26.132	11.322
	2	11.107	2.770	.001**	17.937	4.278

Note: ***p < .001, **p < .01*p < .05; 1 = High, 2 = Mid, 3 = Low

The results corroborate previous results that L2 learners need to produce language that is appropriate and idiomatic to be perceived as being more native-like by mastering collocations (Chon & Shin, 2009, Hsu, 2007; Siyanova & Schmitt 2008). However,

research documents how collocational knowledge not only involves the learning of new phrases, but also of increasing the mastery of phrases which are already known by the L2 writers to some degree (Li & Schmitt, 2009).

Further, the results point to the need for teachers to devote more time in explicitly teaching collocations, and to provide opportunities for students to retrieve multiword items for production, such as via pushed L2 writing. The learning of collocations also needs to be extended by drawing the learners' attention to the differences between the L1 and L2 or on discussing how L1 may have an influence on the acquisition of L2 collocational knowledge. This type of instruction would be less complicated to do when the teacher shares the same L1 as the students. As previously mentioned, there is ample evidence to illustrate that the learning of L2 collocations may be influenced by L1 collocational knowledge, and this will require deliberate attention since the learning of collocations cannot always be explained by simple rules or cross-linguistic relationships (Schmitt & Carter, 2004; Wolter, 2006).

3. Predictors of L2 Writing Proficiency

To obtain a more comprehensive view on what constitutes L2 writing proficiency, RQ 3 was posed to investigate the contribution of learners' different constructs of vocabulary knowledge (i.e., receptive and productive single lexical items and the knowledge of collocations) to learners' L2 writing ability. One of the evolving interests was to observe if L2 collocational knowledge would remain to be a significant factor for explaining the variance in L2 writing proficiency when the learners' receptive and productive vocabulary knowledge was together submitted for analysis. Prior to conducting a hierarchical multiple regression, the relevant assumptions of this statistical analysis were tested. A sample size of 68 was deemed adequate given three independent variables to be included in the analysis (Tabachnick & Fidell, 2001). An examination of correlations revealed that productive vocabulary knowledge and collocational knowledge ($r = -.718$, $p < .01$) were highly correlated. However, as the collinearity statistics (i.e., Tolerance and VIF) were all within accepted limits (under 5 for VIF), the assumption of multicollinearity was deemed to have been met (Heiberger & Holland, 2004, p. 243). An examination of the Mahalanobis distance scores indicated no multivariate outliers.

In the analysis, a three stage hierarchical multiple regression was conducted with L2 writing proficiency as the dependent variable. Receptive vocabulary knowledge was entered at stage one of the regression, productive vocabulary knowledge at stage two, and collocational proficiency at stage three. The variables were entered in this order to ascertain if collocational knowledge remained in the last stage for explaining the variance in L2 writing proficiency (see Table 8).

TABLE 8

Summary on Predictors of L2 Writing Proficiency

Model	B	t	R^2	R^2 Change
Stage 1			.214**	.214**
Receptive Vocabulary Knowledge	.693	4.005**		
Stage 2			.341*	.127*
Receptive Vocabulary Knowledge	.170	.762		
Productive Vocabulary Knowledge	.526	3.342*		
Stage 3			.484**	.144**
Receptive Vocabulary Knowledge	-.102	-.482		
Productive Vocabulary Knowledge	.223	1.399		
Collocational Proficiency	-27.489	-3.985**		

Note: **p < .001, * p < .01

The hierarchical multiple regression revealed that at stage one, receptive vocabulary knowledge contributed significantly to the regression model ($F_{(1,59)} = 16.037$, $p < .001$) and accounted for 21.4% of variation in L2 writing proficiency. Entering productive vocabulary knowledge explained an additional 12.7% of variation in L2 writing proficiency and this change in R^2 was significant ($F_{(1,58)} = 11.170$, $p < .01$). With the additional variable entered, receptive vocabulary knowledge was no longer significant, and this plausibly indicates the stronger contribution of productive vocabulary knowledge for L2 writing. This would refer to the learners' active knowledge of vocabulary, such as in knowing the form, meaning and use of words when asked to produce them in written form. This would also entail having *automaticity* or *fluency* (Schmitt, 2010) which refers to the adequate retrieval/production speed when writing.

Finally, adding collocational proficiency to the regression model explained an additional 14.4% of the variation in L2 writing proficiency and this change in R^2 was significant ($F_{(1,57)} = 15.883$, $p < .001$). When all three independent variables were included in stage three of the regression model, the three independent variables accounted for 48.4% of the variance in L2 writing proficiency. However, with this regression model, neither receptive vocabulary knowledge nor productive vocabulary knowledge remained to be the significant predictors of L2 writing proficiency, and it was only collocational proficiency that resulted in being the predictor of L2 writing.

As indicated in Table 9, a follow-up regression analysis conducted with the constituents of collocational knowledge revealed the knowledge of congruent AN collocations to bring the largest variance (Beta = -.343, $p < .001$) in L2 writing proficiency. This indicates that the knowledge of congruent AN collocations may be crucial in distinguishing the less proficient from the more proficient L2 writers. We attribute this to how the learners were most susceptible to making errors on the receptive collocation test when they perceived synonymy as an additional inhibiting factor (Kim,

2012; Liu, 2013) for retrieving the target AN collocations.

TABLE 9
Collocational Knowledge by Error Rates as Predictors of L2 Writing Proficiency

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	100.233	2.958		33.880	.000
Incongruent AN (8)	-14.294	6.865	-.224	-2.082	.042*
Congruent AN (8)	-20.555	6.714	-.343	-3.061	.003**
Incongruent VN (11)	-18.202	7.202	-.287	-2.527	.014*
Congruent VN (11)	-7.700	8.758	-.093	-.879	.383
$F_{(4, 56)} = 12.802$, p = .000; $R^2 = 47.8$					

Note: **p < .01, *p < .05, ( ) = number of collocations

The results also disprove the simplistic view that L2 learners blindly rely on L1 when they acquire L2 collocations, although this may arguably be an exception for congruent VN collocations in our study. Also, it seems that transfer from L1 to L2 does not always happen, even if the two languages have identical forms and functions. This echoes the findings that "a learner's perception of the distance between the L1 and the L2 affects whether she or he transfers her or his L1 forms or functions to the L2" (Yamashita & Jiang, 2010, p. 662).

V. CONCLUSION

Although the importance of formulaic sequences has been mentioned in numerous studies (Conklin & Schmitt, 2008; Jiang & Nekrasova, 2007; Laufer & Waldman, 2011; Martinez & Murphy, 2011; Schmitt & Carter, 2004; Underwood, Schmitt, & Galpin, 2004; Yamashita & Jiang, 2010), the results of the present study empirically underscore the need to bring the learners' attention to them for fluent and idiomatic use, particularly for improving L2 writing. The analysis as a whole indicated that collocational proficiency is a dominant contributor of L2 writing proficiency, but that the accurate retrieval of collocations will be difficult for L2 learners since the extent of similarities between L1 and L2 collocations will influence the acquisition and use of collocations (Wolter, 2006; Yamashita & Jiang, 2010). Some collocations can be acquired, mediated by L1 (i.e., congruent collocations), while others will need to be acquired by becoming aware of the cross-linguistic differences (i.e., incongruent collocations). In particular for congruent collocations, the present study claims that the knowledge of synonymous

collocates (e.g., last/final) and the ability to retrieve the appropriate lexical combinations from the mental lexicon is an important underlying construct of collocational proficiency. The present study corroborated findings in previous studies that the acquisition of incongruent collocations is more difficult than congruent collocations, but underscores the significance of knowledge on synonymous collocates when trying to retrieve the most appropriate congruent collocation. However, only after sufficient exposure can collocational items be retrieved independently regardless of collocation congruency (Wolter, 2006; Yamashita & Jiang, 2010).

The present study, indeed, claims that collocations need to be learned to potentially improve L2 writing proficiency. However, relative to the literature on vocabulary learning, there is lack of understanding on how formulaic sequences are acquired or how they should be taught (Durrant & Schmitt, 2008; Jones & Haywood, 2004). Some principles from vocabulary research are expected to provide guidelines, and current trends in vocabulary teaching suggest the importance of several factors, including: the need to provide explicit vocabulary instruction (Hulstijn, 2001) while encouraging a deep level of processing (Craik & Lockart, 1972) by exposing learners to various aspects of words, and to conduct training of vocabulary learning strategies (Nation, 2001; Schmitt, 2000).

In a similar vein, Nation (2001) claims that there are three psychological processes that are necessary for vocabulary learning: noticing, retrieval and creative/generative use. Noticing can occur when the lexical item is highlighted as being salient in a text, or when looking up the item or deliberately studying it. At this stage, to notice collocations, word boundaries of unknown sequences may need to be pointed out for making their 'wholeness' apparent since they may not be evident to an L2 learner (Bishop, 2004).

Once a collocation has been noticed, retrieval can be receptive (e.g., encountering the item in reading) or productive (e.g., needing to communicate in writing). In the last stage, creative/generative use occurs when a previously learned lexical item is met or used in a slightly different way. This may be the stage at which learners can be encouraged to produce collocations in meaningful contexts, such as via discussions or exercises on acceptable and nonacccpetable collocations. At this stage, referencing concordance lines is again expected to help in consolidating knowledge on collocations. The corpus examples will help in illustrating and refining the meaning of collocations, reveal the grammatical structures in which it is typically used, and give information about semantic prosody (Jones & Haywood, 2004) and information on the constraints and flexibility of the component words that recombine to form other collocations (Nation, 2001; Yamashita & Jiang, 2010). Also, as we saw in the present study, this may have to be coupled with sensitizing learners to collocation congruency with respect to L1 and L2 equivalents, which often entail knowledge not only on the semantic constraints that the

collocations carry, but also the different types of confusion that may be caused by the synonymy of collocates (Kim, 2012; Liu, 2013).

The present study is not without its limitations. The focus of the study was restricted to the assessment of AN and VN collocations, and also to a limited number of them. These types of collocation tests will need to be designed for a larger number of collocations, with matching levels of frequency and familiarity by including other combinatory parts of speech (e.g., adverbs and verbs). While consensus has been reached that it may be necessary to develop a standardized test of collocations (Martinez & Schmitt, 2012; Read & Nation, 2004; Schmitt, Dörnyei, Adolphs, & Durow, 2004), a general collocation test that has been validated does not exist either for assessing receptive or productive knowledge of collocations, respectively for reading or writing. This is probably due to how there are problems associated with defining and identifying a collocation due to the complex nature of multiword items. When developed, it is likely to provide a valid measure of the learner's collocational proficiency that can be studied in relation to other variables of interest.

REFERENCES

Altenberg, B., & Granger, S. (2001). The grammatical and lexical patterning of 'make' in native and non-native student writing. *Applied Linguistics, 22*, 173-195.

Bishop, H. (2004). The effect of typographic salience on look up and comprehension of unknown formulaic sequences. In N. Schmitt (Ed.), *Formulaic sequences: Acquisition, processing and use* (pp. 227-248). Amsterdam: John Benjamins.

Boers, F., Eyckmans, J., Kappel, J., Stengers, H., & Demecheleer, M. (2006). Formulaic sequences and perceived oral proficiency: Putting a lexical approach to the test. *Language Teaching Research, 10*(3), 245–61.

Chan, T., & Liou, H. C. (2005). Effects of web-based concordancing instruction on EFL students' learning of verb–noun collocations. *Computer Assisted Language Learning, 18*(3), 231-250.

Chon, Y. V., & Shin, D. (2009). Collocations in L2 writing and rater's perceived writing proficiency. *Korean Journal of Applied Linguistics, 25*(1), 101-129.

Conklin, K., & Schmitt, N. (2008). Formulaic sequences: Are they processed more quickly than nonformulaic language by native and nonnative speakers? *Applied Linguistics, 29*(1), 72–89.

Craik, F. I. M., & Lockhart, R. S. (1972). Levels of processing: A framework for memory research. *Journal of Verbal Learning and Verbal behavior, 11*, 671-684.

Davies, M. (2008-2012). *The Corpus of Contemporary American English: 450 million*

words, 1990-present. Retrieved May 6, 2013 from the World Wide Web: http://corpus.byu.edu/coca/.

Dörnyei, Z. (1995). On the teachability of communication strategies. *TESOL Quarterly, 29*(1), 55-85.

Durrant, P., & Schmitt, N. (2009). To what extent do native and non-native writers make use of collocations? *International Review of Applied Linguistics*, *47*, 157–177.

Færch, C., & Kasper, G. (Eds.) (1983). Plans and strategies in foreign language communication. In C. Færch & G. Kasper (Eds.). *Strategies in interlanguage communication* (pp. 20-60). London: Longman.

Heiberger, R. M., & Holland, B. (2004). *Statistical analysis and data display: An intermediate course with examples in S-Plus, R, and SAS*. New York: Springer-Verlag.

Hsu, J. -Y. (2007). Lexical collocations and their relations to the online writing of Taiwanese college English majors and non-English majors. *Electronic Journal of Foreign Language Teaching, 4*(2), 192-209.

Hulstijn, J. H. (2001). Intentional and incidental second-language vocabulary learning: A reappraisal of elaboration, rehearsal and automaticity. In P. Robinson (Ed.), *Cognition and second language instruction* (pp. 258–86). Cambridge, England: Cambridge University Press.

Jacobs, H. L., Zinkgraf, S. A., Wormuth, D. R., Hartfiel, V. F., & Hughey, J. B. (1981). *Testing ESL composition: A practical approach*. Rowley, MA: Newbury House.

Jiang, N. (2004). Semantic transfer and its implications for vocabulary teaching in a second language. *The Modern Language Journal, 88*, 416-432.

Jiang, N., & Nekrasova, T. M. (2007). The processing of formulaic sequences by second language speakers. *Modern Language Journal, 91*(3), 433–45.

Jones, M., & Haywood, S. (2004). Facilitating the acquisition of formulaic sequences. In N. Schmitt (Ed.), *Formulaic sequences: Acquisition, processing and use* (pp. 269-300). Amsterdam: John Benjamins.

Jung, Yeon-Chang, Park, Mi-Sil & Kim, Eun-Il (2010). A study of Korean high school students' collocation knowledge of English synonymous adjectives. *Journal of Language Sciences, 17*(3), 139-161.

Jung, Yeon-Chang, Sur, Ryo-Im & Kim, Eun-Il (2007). A corpus-based study of Korean college students' collocation ability of English synonymous verbs. *The New Korean Journal of English Language & Literature, 49*(2), 175-194.

Kim, Kyoung-Min (2012). L1 influence on L2 collocational knowledge: By level of receptive vocabulary knowledge and general language proficiency. *Korean Journal of Applied Linguistics, 28*(3), 1-38.

Kim, Nahk-Bohk. (2004). Collocational analysis of Korean high school English textbooks

and suggestions for collocation instruction, *English Language & Literature Teaching, 10*(3), 41-66.

Kim, Youngsu & Ma, Jee Hyun. (2011). The effects of collocation-based instruction on L1-Korean high school students' English vocabulary acquisition, *English Language & Literature Teaching, 17*(3), 141-159.

Kroll, J. F., & Stewart, E. (1994). Category interference in translation and picture naming: Evidence for asymmetric connections between bilingual memory representations. *Journal of Memory and Language, 33*, 149–174.

Laufer, B., & Nation, P. (1999). A vocabulary-size test of controlled productive ability. *Language Testing*, *16*(1), 33-51.

Laufer, B., & Waldman, T. (2011). Verb-noun collocations in second language writing: A corpus analysis of learners' English. *Language Learning, 61*(2), 647–672.

Lewis, M. (Ed.). (2000). *Teaching collocation: Further development in the lexical approach*. Boston, MA: Tompson Heinle.

Li, J., & Schmitt, N. (2009). The acquisition of lexical phrases in academic writing: A longitudinal case study. *Journal of Second Language Writing, 18*, 85-102.

Liu, D. (2013). Using corpora to help teach difficult-to-distinguish English words. *English Teaching, 68*(3), 27-50.

Martinez, R., & Murphy, V. (2011). Effect of frequency and idiomaticity on second language reading comprehension. *TESOL Quarterly, 45*(2), 267–290.

Martinez, R., & Schmitt, N. (2012). A phrasal expressions list. *Applied Linguistics, 33*(3), 299–320.

Macmillan collocations dictionary for learners of English. (2010). Oxford: Macmillan.

McCarthy, M., & O'Dell, F. (2005). *English collocations in use*. Cambridge: Cambridge University Press.

Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge: Cambridge University Press.

Nation, P., & Beglar, D. (2007). A vocabulary size test. *The Language Teacher*, *31*(7), 9-13.

Nesselhauf, N. (2003). The use of collocations by advanced learners of English and some implications for teaching. *Applied Linguistics, 24*, 223–242.

Nesselhauf, N. (2005). *Collocations in a learner corpus*. Amsterdam: John Benjamins.

Oxford collocations dictionary for students of English. (2010). Oxford: Oxford University Press.

Read, J., & Nation, I. S. P. (2004). Measurement of formulaic sequences. In N. Schmitt (Ed.), *Formulaic sequences: Acquisition, processing and use* (pp. 23-35). Amsterdam: John Benjamins.

Schmitt, N. (2000). Key concepts in ELT: Lexical chunks. *English Language Teaching Journal, 54*(4), 400-401.

Schmitt, N. (2010). *Researching vocabulary: A vocabulary research manual*. London: Palgrave Macmillan.

Schmitt, N., & Carter, R. (2004). Formulaic sequences in action: An introduction. In N. Schmitt (Ed.), *Formulaic sequences: Acquisition, processing and use* (pp. 1-22). Amsterdam: John Benjamins.

Schmitt, N., Dörnyei, Z., Adolphs, S., & Durow, V. (2004). Knowledge and acquisition of formulaic sequences: A longitudinal study. In N. Schmitt (Ed.), *Formulaic sequences: Acquisition, processing and use* (pp. 55-86). Amsterdam: John Benjamins.

Schmitt, N., & Underwood, G. (2004). Exploring the processing of formulaic sequences through a self-paced reading task. In N. Schmitt (Ed.). *Formulaic sequences: Acquisition, processing and use* (pp. 127-152). Amsterdam: John Benjamins.

Shin, D., Chon, Y. V., & Kim, H. (2011). Receptive and productive vocabulary sizes of high school learners: What next for the basic word list? *English Teaching*, *66*(3), 127-152.

Sinclair, J. McH. (2004). *Trust the text: Language corpus and discourse*. London: Routledge.

Siyanova, A., & Schmitt, N. (2008). L2 learner production and processing of collocation: A multi-study perspective. *Canadian Modern Language Review, 64*(3), 429-458.

Sonbul, S., & Schmitt, N. (2013). Explicit and implicit lexical knowledge: Acquisition of collocations under different input conditions. *Language Learning, 63*(1), 121–159.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate analysis*. Boston: Allyn and Bacon.

Underwood, G., Schmitt, N., & Galpin, A. (2004). The eyes have it: An eye-movement study into the processing of formulaic sequences. In N. Schmitt (Ed.), *Formulaic sequences: Acquisition, processing and use* (pp.153-172). Amsterdam: John Benjamins.

Webb, S., & Kagimoto, E. (2009). The effects of vocabulary learning on collocation and meaning. *TESOL Quarterly, 43,* 55-77.

Webb, S., Newton, J., & Chang, A. (2013). Incidental learning of collocation. *Language Learning, 63*(1), 91-120.

Williams, J. N., & Cheung, A. (2011). Using priming to explore early word learning. In P. Trofimovich & K. McDonough (Eds.), *Applying priming methods to L2 learning, teaching and research: Insights from psycholinguistics* (pp. 73-103). Amsterdam: John Benjamins.

Wolter, B. (2006). Lexical network structures and L2 vocabulary acquisition: The role of L1 lexical/conceptual knowledge. *Applied Linguistics, 27*(4), 741-747.

Wolter, B., & Gyllstad, H. (2011). Collocational links in the L2 mental lexicon and the

influence of L1 intralexical knowledge. *Applied Linguistics, 32*(4), 430-449.

Yamashita, J., & Jiang, Y. (2010). L1 Influence on the acquisition of L2 collocations: Japanese ESL users and EFL learners acquiring English collocations, *TESOL Quarterly, 44*(4), 647-668.

Examples in: English
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