



Teaching Issue

Second Language Collocation Acquisition: Challenges for Learners and Pedagogical Insights from Empirical Research

Sarut Supasiraprapa

National Institute of Development Administration, Thailand

Introduction

Recent years have seen an increase in theoretical discussions and empirical research on second language (L2) collocation acquisition (e.g., Boers & Lindstromberg, 2012; Webb, Newton, & Chang, 2013; Wolter & Gyllstad, 2013). This increase reflects the expansion of work adopting usage-based approaches to language acquisition, which argue for the central role of multi-word units and statistical information in input, such as frequency of lexical co-occurrence, in L2 acquisition (Ellis, 2011, 2013; Ortega, 2013). The increase also follows from the growth of work in corpus linguistics (e.g., Gries, 2010) and the observation that an appropriate use of collocations indicates proficient L2 production (e.g., Pawley & Syder, 1983). In this paper, I first discuss specific definitions of the term collocations, which is sometimes vaguely defined in L2 research. This discussion is followed by a summary of theoretical issues and empirical evidence pertaining to the nature of and challenges in L2 collocation acquisition (e.g., Ellis, 2011, 2013; Wray, 2002). In addition, drawing on pedagogically-oriented empirical studies to date, I offer research-based insights as to how classroom instruction may facilitate L2 collocation acquisition. Limitations in existing studies and future research directions are then briefly discussed.

What Are Collocations?

In L2 research, the term *collocation* has been defined based on two main approaches. First, in the phraseology approach (e.g., Nesselhauf, 2005), collocation refers to a lexical sequence (e.g., *strong tea*) in which at least one word (e.g., *strong*) expresses a figurative meaning and at least one word (e.g., *tea*) expresses a literal meaning. The resulting combination has a transparent meaning, but with an arbitrary restriction on word substitution (e.g., *powerful tea* is unidiomatic although *strong* and *powerful* are semantically related). Collocations are therefore somewhere on the continuum between free combinations, in which each word conveys a literal meaning (e.g., *fast car*), and idioms, which have a meaning not derivable from word parts (e.g., *for good*, as in *He left the US for good*). The second approach is the statistics approach, which defines a collocation as a lexical sequence in which component words have an above-chance possibility of co-occurrence in a corpus (see Gries, 2010). In this view, collocation identification is typically based on two corpus-based measures, mutual information score and t-score, both of which indicate component word association strength. Based on these measures, collocations

include sequences in which all words are used literally (e.g., *little girl*), sequences in which at least a word is used figuratively (e.g., *strong tea*), and semantically opaque sequences (idioms e.g., *for good*). This clearly sets apart the two approaches to defining collocations.

In this paper, my focus will be on English-as-a-second-language (ESL) adjective-noun (e.g., *little girl*) and verb-noun collocations (e.g., *break a promise*) which have a meaning derivable from word parts (i.e., not idioms). The reason is because these collocations pose a challenge for ESL learners (e.g., Farghal & Obiedat, 1995; Henriksen, 2013), deserves pedagogical attention (e.g., Webb & Kagimoto, 2009), and are target collocations in several ESL textbooks (e.g., McCarthy & O'Dell, 2008). Moreover, this focus should allow for a useful discussion about pedagogical issues related to ESL collocations because these collocations have been targets in a great deal of classroom-based ESL research (e.g., Sonbul & Schmitt, 2013; Webb et al., 2013).

The Nature of L2 Collocation Acquisition

Two main theoretical accounts have been given of how L2 learners acquire L2 collocations. First, researchers informed by usage-based approaches to language acquisition, notably Ellis (2011, 2013), attribute L2 collocation acquisition to the human cognitive ability of chunking, which allows word strings to be registered in learner memory and establish sequential relations between them. Later, implicit processing of lexical strings in massive input results in statistical fine-tuning, making the sequential relations in the learner's representation reflect the accumulated statistical information. For example, as a result of listening to the sequences *big problem* and *absolute beginner*, the relation between the two words in each phrase is established in L2 learners' memory. If learners hear the first sequence more often, the relation between *big* and *problem* will be stronger than that between *absolute* and *beginner*. Thus, during language comprehension and production, L2 learners should demonstrate frequency effects, that is, they should process the first sequence faster than the second. During reading, for example, they should need less time to recognize that *big problem* is an English phrase. Moreover, as Ellis (2011, 2013) noted, the acquisition of L2 collocations may be facilitated by instruction or practice that draws learners' attention to collocations because these interventions help register a sequence in a learner's memory before subsequent fine-tuning through collocation exposure.

By contrast, according to Wray (2002), unlike L1 learners, adult L2 learners are unlikely to retain information in their memory regarding L2 word co-occurrence due to a lack of necessity to memorize and use frequently occurring L2 phrases, their L2 education, which traditionally focuses on forms and individual words, and their mature cognitive development and L1 literacy, which prompt them to break down phrases into words. Consequently, the strength of relation between words in a phrase in learners' memory will not be based on how frequent the learners have encountered the phrase. There is therefore a marked difference in the nature and the outcome of collocation acquisition in L1 and L2.

To date, evidence has suggested that L2 learners can retain memory about L2 collocations after exposure to collocations in a training session, leading to an argument that any deficit in L2 collocation knowledge likely results from insufficient L2 exposure, rather than a difference in the nature of L1 and L2 acquisition (Durrant & Schmitt, 2010). In addition, there is evidence that, in phrasal acceptability judgment tasks, in which L2 learners judged whether a word sequence is a possible L2 sequence, advanced learners judged more frequent collocations faster and more accurately than less frequent ones (e.g., Gyllstad & Wolter, 2016; Wolter & Gyllstad, 2013). These results therefore seem compatible with Ellis' (2011, 2013) proposal that L2 learners can retain memory about word co-occurrences and that the strength of relation between words in an L2 collocation in learner memory depends on frequency of previous collocation encounters.

Challenges in L2 Collocation Acquisition

Despite these findings, several types of difficulties and problems in L2 collocation acquisition have been documented. There is evidence, for example, that in writing ESL learners have limited knowledge of English collocations, may use malformed phrases containing words familiar to them (e.g., **do a mistake*), and may underuse or overuse some collocations (e.g., Altenberg & Granger, 2001). Researchers have thus proposed several possible factors that may account for ESL collocation acquisition challenges. According to Boers, Lindstormberg, and Eyckmans (2014), one factor is learners' lack of attention to collocations. That is, when encountering an unfamiliar word in a text, learners are likely to pay attention to the word. However, because many ESL collocations contain high frequency words familiar to learners, these collocations are not salient and are unlikely to attract learners' attention, resulting in unsuccessful acquisition of such collocations.

Semantic factors may also play a role. Many English verb-noun collocations (e.g., *make a mistake*, *have a nightmare*) contain the so-called *light verbs* (e.g., *make* and *have*), which do not contribute much to the meaning of the whole collocation. Because the noun carries the core meaning, the verb is unlikely to attract learner's attention and ESL learners may consequently use a wrong verb (e.g., **do a mistake*) (Boers et al., 2014). Moreover and especially in the case of adjective-noun collocations, learners may overgeneralize the use of synonymous or semantically related words. They may, for instance, use malformed sequences such as *extravagant drinker* and *heavy tea* instead of the correct collocations containing synonymous adjectives (i.e., *heavy drinker* and *strong tea*) (e.g., Farghal & Obiedat, 1995). Even relatively advanced ESL learners may not know that semantically similar adjectives are not always interchangeable as noun collocates (Sonbul, 2015).

Further, learners' L1 may interfere with L2 collocation acquisition. In L2 research, two types of L2 collocations have been identified: congruent and incongruent. A congruent L2 collocation has a direct word-for-word L1 translation equivalent (e.g., *hot tea* for Japanese ESL learners), while an incongruent collocation does not (Yamashita & Jiang, 2010). Evidence has suggested that ESL learners processed congruent L2 collocations faster and more accurately than incongruent ones (Wolter & Gyllstad, 2013; Yamashita & Jiang, 2010). Yamashita and Jiang (2010) ascribed the congruency effect to the readily available L1 counterparts and proposed that incongruent collocation acquisition entails an understanding of component word meanings, which may require contextual cues and is thus more challenging.

Factors Contributing to L2 Collocation Acquisition

Given these challenges, L2 researchers have investigated whether pedagogical interventions can facilitate L2 collocation acquisition. To date, despite being limited in number (Pellicer-Sánchez, 2017), the existing relevant empirical studies have provided some insight regarding factors that may affect the effectiveness of such interventions. Because one purpose of this section is to provide research-based collocation teaching ideas, the section is organized on the basis of specific factors that have been found to affect L2 collocation acquisition, along with related pedagogical activities.

Frequency of encounters. Consistent with Ellis' (2011, 2013) theoretical claim, some classroom-based evidence has suggested that increasing the frequency of collocation encounters helps promote ESL collocation learning. For example, Peters (2014) presented a list of target collocations to ESL learners and asked them to complete collocation exercises, such as an exercise in which learners matched a collocation with its meaning and a cloze exercise. Peters divided 12 target collocations into three groups, and collocations in each group appeared with a different frequency across those exercises (one, three, or five times). Immediate post-test results revealed that collocations appearing five and three times were significantly better recalled than those appearing only once, but recalls of collocations appearing five and three times did not differ significantly. However, in a delayed post-test administered two weeks

afterwards, collocations appearing five times were better recalled than those appearing three and one time.

The role of frequency has additionally been reported in research investigating whether learners can learn L2 collocations incidentally while reading a text for comprehension. This type of research, motivated by studies on single L2 word acquisition (e.g., Hulstijn, 1992), has suggested that such incidental collocation learning is possible and is influenced by frequency of collocation encounters. For example, using 18 target collocations, Webb et al. (2013) created four versions of a graded reader, each differing in the number of times each target collocation appeared (i.e., 1, 5, 10, or 15 times). The participants were divided into four groups. Each group read one version of the text, which contained approximately 5,000 words, while also listening to the text from an audio file. Based on post-tests measuring receptive knowledge (e.g., translation of L2 collocations into L1) and productive knowledge of target collocations (e.g., supplying an L2 collocation for a given L1 translation), the 15 encounter group performed significantly better than the other groups. Moreover, the 10 encounter group outperformed the 5 and 1 encounter groups, but only in terms of productive collocation knowledge. Webb et al. thus argued that 15 collocation encounters within a 5,000-word graded reader effectively promote incidental learning of collocations containing constituent words familiar to ESL learners.

More recently, however, Pellicer-Sánchez (2017) reported that a higher frequency of ESL collocation encounters in reading texts did not lead to a greater learning gain. In this study, however, each target collocation consisted of an adjective and a pseudoword created to replace a high frequency noun (e.g., *dirty soters*, in which *soters* means *clothes*). It is thus questionable if this learning situation can be generalized to other ESL collocation learning situations.

Typographic enhancement in reading texts. L2 researchers have also observed a possible benefit of typographically enhancing (e.g., highlighting or underlying) collocations in reading texts in promoting L2 collocation acquisition. Sonbul and Schmitt (2013), for example, presented collocations in three different conditions to advanced ESL learners: enriched (each target collocation appeared three times in a reading text which participants read for comprehension), enhanced (each target collocation appeared three times in red, bold font in a reading text which participants read for comprehension), and decontextualized (each collocation was presented in red font on a PowerPoint slide without a context and flashed three times). When compared to a control condition, the three conditions demonstrated significant gains in collocation recalls and recognition. Moreover, the enhanced group performed significantly better than the enriched group, but did not perform differently from the decontextualized group. In another study, Szudarski and Carter (2014) compared a learning condition in which target collocations appeared multiple times in a reading text against a condition in which target collocations not only appeared multiple times but were also underlined. The second group outperformed the first in subsequent collocation recalls and recognition. Similarly, Boers et al. (2017) compared a learning condition in which target L2 collocations were underlined in a reading text against another condition in which target collocations were not. In both conditions, each target collocation appeared only once. Post-test results indicated that underlining brought about a significant gain in recognition of the form of these collocations (about 11% higher mean scores).

Exercise formats. One common type of pedagogical intervention in L2 collocation research is to expose learners to a target collocation in a glossed sentence—namely, a collocation appears in a sentence followed by an L1 sentence translation. For example, Webb and Kagimoto (2009) investigated two collocation learning conditions. In a receptive condition, participants saw one target collocation at a time, together with three example glossed sentences containing the collocation. By contrast, in a productive condition, target collocations were paired. Participants encountered one pair at a time, with the corresponding L1 translation, and used the two collocations to complete six gapped sentences. Thus, participants had to consider the context and compare one collocation against the other. In recall post-tests, both groups demonstrated similar significant learning gains. Interestingly, more proficient learners benefitted more from the productive than from the receptive condition, whereas the opposite was observed in the less proficient group. According to these researchers, the greater demand in the productive

condition should have promoted collocation learning of more proficient participants. Such a demand, however, may have reduced the time the less proficient learners were able to focus on the target collocations; thus, the less demanding receptive condition was more beneficial for this group.

The effect of exercise formats was also highlighted by Boers, Dang, and Strong (2017). In their study, three participant groups completed different exercises. The first group saw sentences with a missing verb (e.g., _____ a photo) and selected a verb from a list (e.g., *take*) to complete each blank (i.e., to form a verb-noun collocation). The second group completed the same sentences without answer choices, but was given the first letter of each missing verb (e.g., *t_____ a photo*) as a cue. The third group also encountered the same sentences, but each sentence contained a missing verb-noun collocation (i.e., both the verb and the noun were missing). They selected verb-noun collocations from a list to complete the sentences. In all the three conditions, each sentence appeared with an L1 translation, and, after exercise completion, correct answers were provided. Results from a post-test measuring collocation recall and translation indicated the third group's superior performance, leading the researchers to speculate that, in the third condition, the simultaneous presentation of both the verb and the noun in the list and the exercise format better promoted collocation memory retention and led to greater attention to collocation meaning. Because the simultaneous presentation may have led the learners to chunk the verb and the noun in each collocation, this result seemed in line with Ellis' (2011, 2013) proposal regarding the role of chunking in L2 collocation acquisition.

In addition, Webb and Kagimoto (2011) reported that the effectiveness of using glossed sentences may depend on the number and synonymy of collocates of a word. In their study, when a node word (e.g., *deep*) was presented with six collocates in the list (e.g., *deep respect, deep feelings, deep end, deep sleep, deep voice*), their participants were significantly more likely to recall these six collocations than to recall collocations in which a common node word (e.g., *good*) appeared with only three collocates (e.g., *good laugh, good reason, good behavior*). In this study, participants were also worse at recalling collocations containing synonymous adjectives (e.g., *fast track* and *quick check*) than at recalling other collocations. Thus, using glossed sentences seems to facilitate L2 collocation acquisition, but the effectiveness depends on the number of collocates per node word and synonymy.

Collocation types. As discussed, evidence from lab-based phrasal acceptability tasks has suggested that L2 learners process congruent L2 collocations faster and more accurately than incongruent L2 ones (e.g., Yamashita & Jiang, 2010). Peters (2016) reported that this also holds true in L2 classrooms. In her study, participants first saw a list of target collocations with L1 translations and example context sentences. They then completed collocation exercises and a post-test. The results revealed that congruent collocations were generally better recalled and recognized than incongruent collocations. Moreover, participants' memory retention of adjective-noun collocations was better than that of verb-noun collocations. Peters attributed this to the consistency of the form of adjective-noun collocations across the collocation list, the exercises, and the post-tests. By contrast, with varied forms depending on the context (e.g., tenses), verb-noun collocations were more challenging to learn.

The impact of congruency was also documented in Laufer and Girsai's (2008) study, in which three groups of Hebrew ESL learners first read a text containing target collocations and then completed different classroom activities. The first group discussed questions related to the text content, whereas the second completed an exercise in which they matched each target collocation to a correct meaning and an exercise in which they chose target collocations (e.g., *hit the headline*) from a given list in order to complete gapped sentences (e.g., *Bill Clinton has _____ again*). The third group, by contrast, translated English sentences containing the target collocations into Hebrew and then translated Hebrew sentences, which should prompt the use of the target English collocations, into English. For the third group only, a teacher also provided corrective feedback regarding possible L1-L2 differences (e.g., translating the Hebrew collocation *break into headlines* word-for-word into English will yield an unidiomatic phrase). Therefore, participants in the third group were made aware of possible L1-L2 incongruency. In post-tests of collocation recalls, the second group generally performed better than the first group, and the third

group outperformed the other two groups. To explain this finding, Laufer and Girsai maintained that the third exercise is most demanding, thus leading to better learning gains. The effectiveness of the translation task also seems in line with the suggestion that negative feedback is necessary for L2 acquisition because such feedback helps eliminate a false L2 hypothesis (Larsen–Freeman, 2003)

Conclusions and Future Directions

In sum, an increasing number of studies have demonstrated L2 learners' memory retention of L2 word co-occurrences and sensitivity to collocation frequency, thus corroborating the claim made by usage-based L2 researchers (Ellis, 2011, 2013). However, acquiring an L2 collocation is not an easy task. Directing learners' attention to a collocation may promote its acquisition because such an intervention helps register the collocation in learner memory (Ellis, 2011, 2013), and classroom-based studies have reported various teaching activities that may help facilitate ESL collocation acquisition. First, increasing frequency of target collocations across classroom exercises may promote collocation learning (Peters, 2014). Incidental learning of ESL collocations through reading texts is also possible. In particular, exposing learners to target collocations consisting of familiar words 15 times within a 5,000-word graded reader can bring about sizeable collocation learning gains (Webb et al., 2013). Moreover, typographic enhancements of target collocations in reading texts seem beneficial in promoting learners' memory retention of collocations (e.g., Sonbul & Schmitt, 2013; Szudarski & Carter, 2014).

Glossed sentences or closed exercises can also be effective in promoting short-term collocation memory retention (Webb & Kagimoto, 2009). In addition, when a cloze exercise is used, providing learners with a list of whole collocations (e.g., *take a photo*) as answer choices seem to better promote collocation memory retention than providing only component words in target collocations (e.g., *take*) as answer choices (i.e., the other component words are already present in gapped sentences) (Boers, Dang, & Strong, 2017). Furthermore, increasing the number of collocations sharing the same node word (e.g., *deep respect*, *deep feelings*) in glossed sentences may further promote memory retention of these collocations (Webb & Kagimoto, 2011).

Collocation type is another factor that ESL teachers may need to consider when teaching collocations. Given that incongruent ESL collocations are more difficult to acquire than congruent ones, to facilitate incongruent L2 collocation acquisition, teachers may use a translation task that draws learners' attention to L1-L2 differences and provide learners with necessary feedback (Laufer & Girsai, 2008). This task type is, of course, practical when students speak the same L1. Finally, because the same classroom collocation exercises may be more effective in facilitating adjective-noun collocation acquisition than verb-noun collocation acquisition (Peters, 2016), ESL teachers may consider if more class time needs to be spent on this latter collocation type.

It should be pointed out, however, that the existing classroom-based ESL collocation studies contain some limitations that ESL teachers should be aware of and/or that future research can address. First, in these studies, some factors which may have affected the results were not strictly controlled for. For example, in a study by Sonbul and Schmitt (2013), in which the enhanced condition was more effective than the enriched condition, it was not clear, as the authors also acknowledged, if learners had some knowledge of the target collocations before the experiment. Thus, the effectiveness of the enhanced condition may be questionable if some target collocations in this condition were initially known to participants but all collocations in the other conditions were unknown. Second, some existing classroom-based studies measured learning outcomes with only immediate post-tests (e.g., Webb & Kagimoto, 2009), casting doubt on the effectiveness of the exercises or learning conditions investigated over a more extended period of time. Third, the existing studies typically used non-communicative classroom activities (e.g., a cloze exercise). Future studies could therefore investigate effectiveness of more communicative activities in promoting ESL collocation learning. Another interesting issue that has yet to be investigated is the effect of familiarity or a lack thereof with constituent words in collocations. One

possibility is that, when encountering a collocation containing an unknown word, ESL learners may pay attention to the whole collocation (Boers et al., 2014). Alternatively, they may instead focus on the unknown word, not paying attention to the collocation as a unit (Webb et al., 2013). These possibilities can therefore be examined in future research.

The Author

Sarut Supasiraprapa obtained his PhD in second language studies from Michigan State University. He is a lecturer in the Graduate School of Language and Communication at the National Institute of Development Administration in Bangkok, Thailand. His research interests include second language acquisition, particularly usage-based acquisition, advanced second language writing, and research methods.

Graduate School of Language and Communication
National Institute of Development Administration
118 Moo 3, Serithai Road, Klong-Chan, Bangkok
Bangkok, Thailand 10240
Email: sarut.sup@nida.ac.th

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