Receptive Knowledge of Nouns and Collocations
and the Impact on English Skill Performances

Hoang Minh Tran[a]
tmharies@gmail.com
School of Languages and General Education,
Walailak University, Thailand

Budi Waluyo[b]
budi.business.waluyo@gmail.com
School of Languages and General Education,
Walailak University, Thailand

ABSTRACT

Interests in examining the roles of receptive vocabulary knowledge and collocational knowledge and competence on EFL learners' proficiency have grown considerably; yet, the extent of how EFL learners' receptive knowledge of noun, verb-noun collocations, and noun-preposition collocations impact their English skill performances is still insufficiently researched. To address such gaps, this study specifically explored Thai EFL learners' receptive knowledge of nouns and collocations and its impact on English skill performances. Three types of receptive vocabulary tests were created by using high-frequency nouns taken from the Academic Vocabulary List (AVL), which became the basis of selecting verb-noun lexical collocations and noun-preposition grammatical collocations. The tests were validated by a pilot study, then distributed to the 2nd year students ($N = 135$; 28 males; 107 females) at Walailak University, Thailand. The results of the tests were analyzed by using descriptive statistics, independent t-test, ANOVA, and multiple linear regressions. It was revealed that Thai EFL learners, who participated in this study, had insufficient knowledge of noun, either in form or in meaning, and encountered complexities in identifying lexical and grammatical collocations. Receptive knowledge significantly predicted learners' performance in reading tasks. The findings of this study indicate the urgent need to include collocations into English teaching as Thai EFL learners seem unable to acquire them on their own; besides, the insufficient knowledge of the form and meaning of nouns may imply a deeper problem in Thai EFL learners' proficiency in grammatical structure. Therefore, it is important to emphasize that English teaching and learning materials, e.g., textbooks and modules, as well as course design and instruction at the university level in Thailand need to include explicitly integrated lessons of nouns (form and meaning) and collocations to facilitate the development of knowledge in such areas.

Keywords: English skill performances; grammatical collocations; lexical collocations; nouns; receptive vocabulary knowledge

INTRODUCTION

Possessing the knowledge of nouns plays a pivotal role in learners' language development. It enables EFL/ESL learners to grasp ideas in the textbooks through nominal groups effectively (de Oliveira, 2010), and use nominal expressions in communications accurately (Fang et al., 2006). The knowledge of nouns gains instructors' attention in academic training as academic nouns account for the highest number of word items in reading texts and Academic Vocabulary

List (AVL) (Gardner & Davies, 2014). Moreover, the acquisition of nouns facilitates learners to recognize the right associated words such as verbs, adjectives, or prepositions, etc., prefabricating the so-called lexical collocations e.g., verb-noun, noun-verb, noun-noun or adjective-noun, and grammatical collocations e.g., noun-preposition or preposition-noun, constantly presented in lectures, tasks or assignments. These collocations were found to have essential impacts on learners' academic English performances such as speaking and writing (Jiang & Hyland, 2018). Despite such importance, interests in exploring nouns are still limited to the studies around noun phrases (Akinlotan & Housen, 2017), the semantic synergy of noun and verb (Fatkullina et al., 2018), and the roles of noun compounds (Kuczok, 2016). There is little study exploring L2/foreign language learners' receptive vocabulary knowledge on basic noun form and meaning (Nguyen & Webb, 2016) whereas findings in this area can be useful to inform vocabulary teaching and learning instructions.

A noun is not only important when it stands alone. It also contributes to convey different meanings when it is formed in various collocations. In the literature, those noun collocations that have been empirically examined in recent years include verb-noun collocations (e.g., wash clothes in Lantolf & Tsai, 2018), adjective-noun collocations (e.g., heated debate in Basal, 2019), and noun-noun collocations (e.g., peer correction in Men, 2018); however, noun-preposition collocations (e.g., information about), seem to be underexplored. Szudarski and Carter (2016) state that the knowledge of how to effectively use collocations, including noun collocations was of importance for L2/foreign language learners that the success can rely on typographical salience of input, collocational competence, and frequency of encounters. There is also an indication that L2/foreign language learners' collocational knowledge has a close connection to their knowledge of the component words. Positive relationships were observed between L2/foreign learners' knowledge of collocations and single-word items (Nguyen & Webb, 2017). In other words, the development of learners' knowledge of vocabulary as a single word like a noun can enhance their collocational knowledge, and vice versa.

Drawing on the vital roles of nouns as either a single word or a component word in collocations, the present study intends to investigate L2/ foreign language learners' receptive knowledge of nouns and associated collocations, and examine how learners use the knowledge in four English skills: listening, speaking, reading, and writing. Specifically, in the context of teaching collocations as a current trend in Thai education, the study explores Thai EFL learners' ability to recognize the forms and meanings of high, moderate, and low-frequency academic nouns and associated verb-noun and noun-preposition collocations. The study focuses on the two collocations of nouns because they were found to occupy the highest number of errors in learners' university writings (Boers, Demecheleer, Coxhead, & Webb, 2014; Nesselhauf, 2003). Earlier studies pointed out learners' vocabulary knowledge can significantly influence the progress of language proficiency (Stæhr, 2008), impact learners' performances in the four main English skills (Kilic, 2019), and even help identify learners' success in searching electronic sources for information (Niitemaa & Pietilä, 2018). This study, hence, expects to provide additional insights into these findings and shed light on the relationship between learners' recognition of nouns, associated noun collocations, and their English skill performances. It seeks to address the following research questions:

1. How will Thai EFL learners perform in academic nouns and collocations tests? What types of relationships will be observed in these areas of vocabulary knowledge?
2. How will Thai EFL learners perform in noun, verb-noun, and noun preposition tests compared to their total vocabulary knowledge scores?
3. How will Thai EFL learners' receptive knowledge of nouns and collocations impact their English skill performances?

LITERATURE REVIEW

RECEPTIVE VOCABULARY KNOWLEDGE

Studies measuring L2/foreign language learners' vocabulary have generally explored in two areas involving receptive and productive vocabulary knowledge. The two knowledge are also used interchangeably for learners' breadth and depth of vocabulary knowledge. Early studies have suggested that receptive vocabulary knowledge can help identify productive vocabulary size, in which learners with a larger receptive vocabulary will more likely know and use the words that they know in performing productive skills in target language (Webb, 2008). According to Beglar and Nation (2013), receptive vocabulary knowledge is argued to precede productive knowledge both in L1 and L2 language acquisition; therefore, measuring learners' receptive knowledge enables teachers to attain representative understandings of the number of words that learners know and provides opportunities for better course designs and instructions that can enhance learners' vocabulary knowledge.

There have been several test formats, used for assessing learners' receptive vocabulary knowledge. The first format is the Yes/No test which has been observed to be a valid measure of scores on the Vocabulary Levels Tests (VLT) (Mochida & Harrington, 2006). Other formats include matching and multiple-choice tests which are primarily focused on examining learners' knowledge of the form and meaning of a word. These test formats have been used in previous empirical studies. Beglar (2010), for instance, examined a vocabulary size test comprising multiple-choice questions by employing a Rasch-based validation and obtained positive results encouraging the use of the test for measuring learners' vocabulary learning progress continuously. Recently, Pecorari et al. (2019) developed a new academic vocabulary test that utilizes matching format between form and meaning, and managed to attain a set of validated items that can be utilized for measuring pre-and post-tests in vocabulary learning. Apart from the validity results, they specifically emphasized that a matching format tests offer flexibility that can be accommodated by various learning platforms and survey tools.

This study considers the assessment of receptive vocabulary knowledge as an initial stage to find out the overall stage of learners' vocabulary. The results of the assessment serve as a sort of starting point for learners and how far they can advance in their vocabulary learning, probably depending on what teachers know about their receptive knowledge and how much input they receive from teachers. To put it simply, without having the knowledge of learners' receptive vocabulary, teachers will not be able to identify learners' needs which can significantly affect the learning outcomes. The importance of understanding learners' receptive knowledge has been confirmed by empirical studies. Miralpeix and Muñoz (2018), in their study that analyzed the relationships between receptive vocabulary size and English proficiency, noted that receptive knowledge can explain about 30% of the variability in writing and reading and lesser in speaking and listening. Nevertheless, Uchihara and Harada (2018) observed the complex interplay of various factors, implying that receptive knowledge is not the only determining factor in predicting learners' proficiency levels. Empirical evidence has been also investigated on the impacts of receptive vocabulary knowledge on reading (Schmitt et al., 2011), writing (Roche & Harrington, 2013), speaking (Uchihara & Clenton, 2018), and listening (Atas, 2018). Furthermore, Masrai and Milton (2017) found that learners' ability in recognizing both academic and general words can explain approximately 56% variance in their university Grade Point Average (GPA). Similar results were observed by Alsager and Milton (2016) in the context of Arabic undergraduate learners.

NOUNS

In English, nouns are the most widely known word type and are considered fundamental in grammatical structures alongside verbs (Langacker, 1987). Nouns can aid in the construction of a grammatically correct sentence as they can also function as subjects. The ability to recognize a noun and its meaning is closely related to the ability to infer word definition (Wehren et al., 1981) and this is considered as a metalinguistic skill (McGhee-Bidlack, 1991). In the study involving participants of different ages to define concrete and abstract nouns, McGhee-Bidlack found that "the ability to define a noun is not only dependent upon learners' knowledge of word meaning but also the implicit or explicit knowledge of noun form." (p. 417). Besides, the word frequency level affects learners' ability to recognize a noun and use it in classroom task performance (Marinellie & Chan, 2006). In other words, the recognition of nouns reflects how frequently the word is exposed and retained by the learners before being used in speaking and writing.

To assess learners' recognition of noun form and meaning, some of the previous studies use a matching test format in which there are more than one noun and meaning presented. A study from Qian (2002), for example, used such a test where the test takers were required to match three definitions with three of the six provided words by indicating the corresponding numbers next to each definition as illustrated in Table 1. Also, Beglar and Nation (2013) employed the multiple-choice test format, in which the target word along with its non-defining context was presented, and then the test takers were required to choose the right meaning of the word from one of four options provided, as seen in Table 2. All these test formats are simply intended to measure learners' knowledge of noun form and meaning, and the conclusion can be drawn immediately by looking at the total correct answers made by the test-takers, which is in line with the objective of the present study.

TABLE 1. Sample matching test questions (Qian, 2002)

Words	Definitions
1. Ceiling	
2. Office	….. something that tells time
3. Watch	….. main body of a tree
4. Vehicle	….. a tool used for writing
5. Trunk	
6. Pen	

TABLE 2. Multiple-choice questions (Beglar & Nation, 2013)

Words	Question	Options
Innocuous	This is **innocuous.**	A. cheap and poor in quality
		B. harmless
		C. not believable
		D. very attractive looking

COLLOCATIONS

Collocations are formed by combining a node with a collocate. For example, Bueraheng and Laohawiriyanon (2014) explain that the word "quick glance" has "quick" as the node and "glance as the collocate. Basically, there are two types of collocations: lexical and grammatical collocations. Lexical collocations involve principal words such as verb, noun, adjective, or adverb such as verb + noun, adjective + noun, noun + noun, etc. while grammatical collocations encompass noun + preposition, noun + to infinitive, noun + that clause, etc. (Barfield, 2012). In this study, aside from measuring learners' receptive knowledge on noun form and meaning,

it also seeks to explore learners' receptive knowledge on lexical collocations (e.g., noun-verb collocations) and grammatical collocations (e.g. noun-preposition collocations).

Verb-noun is one of the lexical collocations that have been explored extensively by previous studies. Boers et al. (2014) note that from various contemporary EFL textbooks, verb-noun collocations, e.g., make a mistake, take a break, conduct a study, etc. are the most popular for collocation learning targets. Despite the popularity, L2/foreign language learners faced difficulty in producing verb-noun collocations; it seems that producing noun-verb collocations are more difficult than comprehending collocation meanings (Kim & Yoon, 2008). An exploratory study carried out by Nesselhauf (2003) on the use of verb-noun collocations discovered that advanced English learners experienced difficulties in producing the collocations correctly and that collocations should be taught with the primary focus on the verb since it caused the greatest difficulties. Also, there is a sign that learners have difficulties when the patterns of verb-noun collocations being learned do not exist in their L1 (Murao, 2004). On the other hand, others found that focus on form instructions as well as levels of input enhancement can potentially contribute to the acquisition of verb-noun collocations (Szudarski & Carter, 2016).

Research on verb-noun collocations has been much emphasized on learners' receptive knowledge and errors in producing the collocations (Men, 2018) while the impacts of verb-noun collocation receptive knowledge on learners' English skill performances are still understudied. There are a few studies conducted on the relationships between learners' collocational knowledge and English proficiency. One of the studies is from Hajebi (2018) who noticed positive relationships between Iranians' English proficiency, measured by the Michigan proficiency test, and their knowledge of collocations. Also, Namvar (2012) found a positive correlation between the use of collocations and learners' overall proficiency. Hence, up till now, there has been little findings of Thai EFL learners' receptive knowledge of verb-noun collocations, and how the knowledge impacts learners' English skill performances.

Noun-preposition is a type of grammatical collocations that has been found to be moderately difficult for learners to recognize and produce in the target language (Namvar, 2012). Some of the examples of this collocation are *knowledge of*, *reason for*, *concern with*, *access to, congratulations on*, and *agreement about*. Although there are a few studies that explicitly investigated grammatical collocations, noun-preposition particularly, there seems to be an indication that the use of grammatical collocations has the potential to be a better indicator of the production of lexical collocations (Kim & Bae, 2012). Additionally, in a study by Mohajeri et al. (2013) on the difficulty level of the two kinds of collocations, learners found grammatical collocations to be more difficult than lexical ones, indicating noun-preposition as the hardest collocation. In Thailand, advanced and elementary learners' knowledge and use of collocations have been recently found to be influenced by L1 transfer, prior knowledge, and familiarity with the given tests (Sridhanyarat, 2018).

To select the right collocations, the present study adopted the concepts of collocation structure, and indicators for identifying the most frequently occurring collocations in the corpus from Ackermann and Chen (2013), Davies and Gardner (2013), and Hunston (2002). Conceptually, a typical collocation is constituted by two words: a node and a collocate. The node is the central word, whereas the collocate is the word closely appearing on the left or on the right of the node. For illustration, in academic verb-noun and noun-preposition collocations, academic nouns were nodes, and verbs and prepositions were collocates. The study also used two indicators: t-score and Mutual Information (MI) score for examining the cohesion between a node and a noun. The two indicators are used because they aid to seek the right collocation in corpus quickly. The t-score denotes the frequency of a node and a collocate occurring together. According to Hunston (2002), its value varies according to the corpus size, but it is always ≥ 2. For instance, the t-scores are ≥ 20 and ≥ 4 in Corpus of Contemporary American

English (COCA) and Pearson International Corpus of America English (PICAE) in that order. Meanwhile, the MI score signifies the strength of the connection between a node and a collocation. Its value is always ≥ 3.

Generally, the researchers employed MI score (≥ 3), t-score (≥ 20), and high-frequency academic nouns as nodes in combination so as to identify the most frequently occuring verb-noun and noun-preposition collocations in COCA as target ones. Otherwise, they made use of MI score (<3) and t-score (<2) to seek the least frequently occuring collocations as distracting ones. To illustrate, the verb *provide* is the most frequently occuring collocate of noun node *analysis* in COCA because of the MI score (24) and t-score (≥ 20). Meanwhile, with MI score (1) and t-score (<2), the least frequently occuring verb collocate is *beat* (Table 3). Note that the COCA was used in this study because it has been the current corpus containing the highest numbers of academic vocabularies.

TABLE 3. An example of verb-noun collocations

Collocates	Node	MI score	t-score
Provide	analysis	24	≥ 20
Beat		1	< 2

METHOD

RESEARCH CONTEXT

This study was conducted at the School of Languages and General Education (SOLGEN), Walailak University, Thailand. It involved 135 2nd year students consisted of 28 male (20%) and 107 female students (80%). Aged from 19 to 23, the participants were at intermediate English level based on their performance in the university proficiency test (WUTEP), corresponding to the IELTS score of 5.0. The participants were majoring in Accountancy, ASEAN Studies, Chinese, Communication Arts, Computer Engineering, English, Laws, Multimedia Technology and Administration, Nursing Science, Physical Therapy, Political Science, Public Administration, Public Health, Thai Studies, Tourism and Hotel, and Veterinary Medicine. They were studying English Presentation in Social Sciences and Humanities subject in the 2nd term of 2019-20 academic year (November 2019 – January 2020). These participants were divided into five classes (around 27 students for each). All of them took the receptive vocabulary knowledge test at the end of the course (January 2020).

MEASURES

MEASURES OF RECEPTIVE VOCABULARY KNOWLEDGE

To measure the Thai EFL learners' receptive knowledge, this study designed three vocabulary tests using the words listed in Academic Vocabulary List (AVL) from Gardner and Davies (2014). Most of globally previous studies (e.g., Nguyen & Webb, 2016) examined vocabulary knowledge utilizing Vocabulary Level Test (VLT). The present study intentionally used the AVL with the expectation to provide findings on a different type of vocabulary list. The vocabulary tests consisted of academic nouns (form and meaning), verb-noun collocation, and noun-preposition collocation, as elaborated below.

MATCHING TEST OF ACADEMIC NOUNS

The matching test of academic nouns encompasses 10 items. Each of them encompasses six academic nouns (three targets and three distractors) on the left, and three meanings on the right. The test takers were asked to write letters of the alphabet in the space provided, to match the right nouns with the corresponding meanings, as shown in the following.

a.	table	___d___	an area of knowledge studied in a school
b.	group	___c___	the act or result of something becoming different
c.	change	___f___	an institution at the highest level of education where you can study for a degree or do research
d.	subject		
e.	system		
f.	university		

FIGURE 1. An example of matching test of academic nouns

This test selected academic nouns from the verb-noun collocations used in the test below as target. It also used the AVL for choosing distracting nouns. The meanings of target and distracting nouns were checked by using Oxford and Cambridge Advanced Learner's Dictionaries which were to avoid the overlap of the noun meanings as suggested by Nation & Web (2011).

MULTPLE-CHOICE TEST OF VERB-NOUN COLLOCATIONS

The multiple-choice test of verb-noun collocations contains 30 test items. Each item has one noun as a stem, and four options (1 target verb, 2 distracting verbs, and "I do not know" option). Respondents were assigned to select the correct verbs frequently occurring with nouns. Otherwise, they could choose "I do not know" option, as illustrated below.

_____ (an) agreement
A. reach
B. control
C. determine
D. I do not know

FIGURE 2. An example of multiple-choice test of verb-noun collocations

Target verb-noun collocations in this test were selected by applying three steps (see Figure 1). To begin with, academic nouns were chosen from high to low-frequency occurrence in AVL. Next, associated verbs were sought in ACL. Noticeably, if associated verbs could not be found, new academic nouns would be used. Then, verb-noun collocations were examined in COCA base on MI score (≥ 3), and t-score (≥ 20) in combination to assure their most frequent usage in academic texts. Moreover, distracting verbs were searched in COCA by means of academic noun nodes, MI score (<3) and t-score (<2). Additionally, 'I do not know" option was utilized to eliminate the possibility of answering test items randomly (Nation, 2001).
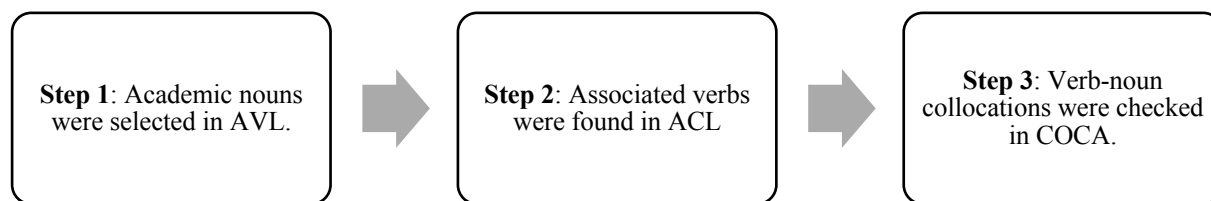
FIGURE 3. The process of selecting verb-noun collocations

MULTIPLE-CHOICE TEST OF NOUN-PREPOSITION COLLOCATIONS

The multiple-choice test of noun-preposition collocations consists of 30 test items. There is one noun as a stem with four options (1 target preposition, 2 distracting prepositions, and "I do not know" option) in each test item. The noun stems were embedded in sentential contexts to rule out the variation of target noun-preposition collocation meanings. Participants were to select the frequently occurring prepositions of the nouns, or "I do not know" option if they do not know the answers, as written in the following.


```
They have a free trade agreement _____ Australia.
A.  with
B.  towards
C.  amid
D.  I do not know.
```
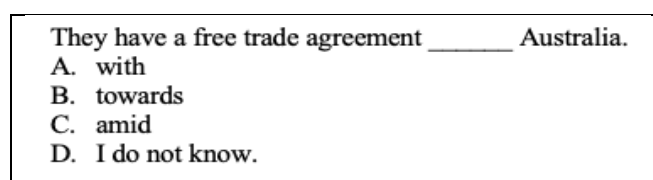
FIGURE 4. An example of multiple-choice test of noun-preposition collocations

The researchers utilized the COCA to look for associated prepositions based on noun nodes, MI score (≥ 3), and t-score (≥ 20) in combination. Likewise, they searched distracting prepositions under the MI score (<3) and t-score (<2). Furthermore, the researchers sought sentential contexts in Oxford and Cambridge Advanced Learner's Dictionaries.

VALIDITY AND RELIABILITY

The researchers designed the three tests on the basis of the procedure recommended by scholars (Nation, 2001, Hunston, 2002; Nguyen & Webb, 2016). Thirty items in each test were employed because it was the number suggested by Nation (1990) and Schmitt (2000) for a vocabulary test. Additionally, the researcher sought comments from two Walailak University reviewers to assure the validity of the test contents. The reviewers are one Native Speaker (NS) and one Ph.D. lecturer, majoring in English Studies and Education. Their comments helped the researchers to edit the test contents. Furthermore, pilot tests were conducted on 29 participants (males = 3, and females = 26) who were second-year university students with the same English proficiency level in order to examine the test's reliability. These participants were selected randomly. Cronbach's alpha coefficients were computed following the pilot test. According to McMillan (2012), the accepted result must be over 0.70. As shown in Table 4, the coefficients of the verb-noun collocation test, noun-preposition collocation test, and academic noun test were 0.82, 0.72, and 0.70 respectively. This shows that the three tests were reliable.

TABLE 4. The Cronbach's alpha coefficients of research instruments

	Cronbach's Alpha Coefficients
Multiple-choice Test of Verb-Noun Collocations	0.82
Multiple-choice Test of Noun-Preposition Collocations	0.72
Matching Test of Academic Nouns	0.70

MEASURES OF LEARNERS' ENGLISH SKILL PERFORMANCES

To measure learners' English skill performances, the study utilized the final tests in the English Presentation in Social Sciences and Humanities subject. They encompassed four parts: listening, speaking, reading, and writing. The tests were employed because they could help to assess participants' academic vocabulary competence. The tests consisted of all the four English language skills:

SPEAKING TEST

The speaking test was in the form of the presentation of an academic topic. A list of 18 topics such as Thai criminal justice, history, or tourism, was given participants two weeks prior to the test. The participants were to select one topic on their own and present it in five minutes. Additionally, they had to answer their subject instructors' questions at the end of the presentation.

WRTITING TEST

The writing test was an essay writing test. Participants had to write a 250-word (maximum) essay which is the script of the topic presented in the speaking test in 45 minutes.

LISTENING TEST

The listening test contained a set of six conversations with 20 test items. Developed in the multiple-choice test format, the number of items for each conversation varied (e.g., conversation 1 had 2 items whereas conversation 6 had 5 items. The number of items for each test increased as the test difficulty level increased). Every item includes one question or one unfinished statement as a stem, and four possible options or endings. Participants were to listen to each conversation once and choose the best answer for the question or statement.

READING TEST

The reading test consists of a series of four passages. Each passage is around 300-350 words long, and there are five test items. Every item includes one question or incomplete statement as a stem, and four possible options. Participants were assigned to select the best response of the question or statement. They were given 20 minutes to answer the reading test.

DATA COLLECTION

The data collection was carried out at Walailak University from 1st to 15th February 2020 after obtaining the approval of the Research Committee in the Languages Department of Walailak University. Prior to the data collection, a meeting with the Dean and teachers in-charge at the School of Languages and General Education was organized to (1) seek permission for contacting the students, (2) present the research proposal, and (3) implement the research plan. In general, the data collection was proceeded by following these steps. First, the researchers met with the participants and presented the details of the research. Second, the consent forms were provided, and the participants' understandings of the research were ensured through question-answer sessions. Then, the researchers administered the three tests online by using Google forms. The participants used their mobile phones to access the Google forms and complete the test. The multiple-choice tests of verb-noun and noun-prepositions were conducted before the matching test of academic nouns to minimize the participants' anticipation of correct answers from noun meanings in the academic noun test (Nation, 2011).

The three tests were conducted during class time, and each test lasted 20 minutes. Moreover, to obtain the participants' results of English skill performances, the researchers completed a university data request form to use the data for this study. These tests were graded by subject instructors and were stored at the university database for research use.

DATA ANALYSIS

After the data collection process, various statistical techniques were performed to answer the three research questions. Descriptive statistics, bivariate correlation, and item facility analysis were conducted to answer the first research questions. Then, a means comparison was run to explore the significant differences in the second research question. Multiple linear regressions were performed to answer the third research question. All the data analyses were done by using IBM SPSS Version 23.

RESULT

RQ1: HOW WILL THAI EFL LEARNERS PERFORM IN ACADEMIC NOUNS AND COLLOCATIONS TESTS? WHAT TYPES OF RELATIONSHIPS WILL BE OBSERVED IN THESE AREAS OF VOCABULARY KNOWLEDGE?

The vocabulary test consisted of three parts that tested the learners' receptive knowledge on noun (form and meaning), verb-noun (lexical collocation), and noun preposition (grammatical collocation); each part has a total number of questions. The test results indicate that on average, Thai EFL learners had better knowledge on noun-preposition collocation ($M = 16.52$, $SD = 4.82$) than on verb-noun collocation ($M = 14.36$, $SD = 4.37$) and noun ($M = 10.71$, $SD = 7.11$); however, the high standard deviations suggest a wide gap of receptive vocabulary knowledge among the learners, especially on the noun. The total mean score of Thai EFL learners' receptive knowledge was 41.58/90 ($SD = 13.03$), which was only 46.2% from the whole test. Across genders, there were no significant differences between male and female Thai EFL learners' scores on noun (t (133) = -.609, $p = .544$), verb-noun (t (133) = .167, $p = .868$) and noun-preposition (t (133) = -.704, $p = .483$). Table 5 below presents Thai EFL learners' scores on the tests of noun, verb-noun, and noun-preposition.

TABLE 5. Descriptive statistics of the learners' scores on each test ($N = 135$)

	Mean	SD	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Noun	10.71	7.119	.885	.209	-.359	.414
Verb-Noun	14.36	4.368	-.278	.209	.624	.414
Noun-Preposition	16.51	4.820	.152	.209	.124	.414
Total Score	41.5778	13.03295	.264	.209	.093	.414

To further understand these results, this study conducted Item Facility (IF) analysis on each test. The accepted result was set in three levels of difficulty: easy ($\geq$ .70), moderate/acceptable ($\geq$.30), and difficult ($<$ 30) (Brown, 2005). The results revealed that Thai EFL learners had difficulty in identifying nouns including *result, process, role, factor, condition, performance, resource, method, and environment*, which impacted their ability to recognize lexical and grammatical collocations using these words. The types of difficult verb-noun lexical collocations for Thai EFL learners included *conduct research, obtain (a) result, provide material*, and *create (an) environment*, while noun-preposition grammatical collocations involved *process of, role in, goal of, article on, benefits of* and *survey of*. Table 6

below provides the Item Facility (IF) results both from the matching test (noun) and two multiple-choice tests (verb-noun and noun-preposition), and all the words are arranged from high to low-frequency order.

Moreover, significant relationships were noted in these three areas of receptive knowledge. Moderate level relationship was observed between Thai EFL learners' knowledge on verb-noun and noun-preposition ($r = .55$, $p = < .001$), while the relationship strengths were weak between noun and verb-noun ($r = .48$, $p = < .001$) and noun and noun preposition ($r = .34$, $p = < .001$). The internal consistency of these three areas of vocabulary knowledge was at a moderate level ($\alpha = .68$) and could get higher if the noun were deleted ($\alpha = .71$). These significant relationships signify the suitability of these three tests for measuring receptive vocabulary knowledge.

TABLE 6. Item facility of the matching test and the multiple-choice tests ($N = 135$)

Frequency Order	Matching Test of Academic Nouns	IF	Multiple-choice Test of Verb-Noun Collocations	IF	Multiple-choice Test of Noun-Preposition Collocations	IF
1	research	0.42	conduct (a) research	0.17	research on	0.66
2	result	0.26	obtain (a) result	0.15	result of	0.87
3	process	0.22	begin (a) process	0.47	process of	0.29
4	development	0.53	encourage (the) development	0.59	development of	0.5
5	Data	0.42	collect data	0.65	data from	0.82
6	information	0.3	provide information	0.64	information about	0.88
7	relationship	0.41	establish relationship	0.65	relationship with	0.48
8	role	0.28	assume (the) role	0.52	role in	0.19
9	analysis	0.38	conduct analysis	0.42	analysis of	0.71
10	factor	0.19	identify factors	0.57	factor in	0.77
11	material	0.43	provide material	0.17	material for	0.76
12	condition	0.29	create conditions	0.59	conditions for	0.43
13	knowledge	0.39	acquire knowledge	0.36	knowledge of	0.65
14	support	0.39	provide support	0.51	support for	0.64
15	performance	0.23	enhance performance	0.53	performance of	0.52
16	approach	0.43	adopt approach	0.55	approach to	0.6
17	source	0.35	provide (a) source	0.62	source of	0.72
18	resource	0.25	allocate resources	0.43	resource for	0.61
19	strategy	0.44	develop (a) strategy	0.47	strategy for	0.41
20	theory	0.4	apply (the) theory	0.55	theory of	0.49
21	method	0.26	apply (a) method	0.53	method of	0.71
22	Goal	0.5	achieve (a) goal	0.59	goal of	0.29
23	article	0.41	publish (an) article	0.71	article on	0.24
24	environment	0.29	create (an) environment	0.26	environment for	0.54
25	example	0.43	provide (an) example	0.3	example of	0.62
26	Task	0.35	complete (a) task	0.33	task of	0.56
27	finding	0.34	report findings	0.66	finding of	0.5
28	impact	0.38	assess (the) impacts	0.48	impact on	0.38
29	benefit	0.41	provide benefits	0.55	benefits of	0.27
30	survey	0.39	conduct (a) survey	0.37	survey of	0.25

RQ2: HOW WILL THAI EFL LEARNERS PERFORM IN NOUN, VERB-NOUN, AND NOUN-PREPOSITION TESTS COMPARED TO THEIR TOTAL VOCABULARY KNOWLEDGE SCORES?

Each mean obtained from the three parts (noun, verb-noun, and noun-preposition) of the vocabulary tests was compared with the total scores of Thai learners' receptive knowledge.

The means comparison results revealed significant differences between the total scores of receptive knowledge and Thai EFL learners' performances on noun (F (1, 134) = 11.306, $p <$ .001, η^2 = .855), verb-noun (F (1, 134) = 6.296, $p <$ .001, η^2 = .767) and noun-preposition (F (1, 134) = 6.614, $p <$ .001, η^2 = .776). As shown in the eta squared coefficient (η^2), the effect sizes were large for each knowledge which implies the contribution of noun, verb-noun, and noun-preposition to Thai EFL learners' receptive vocabulary knowledge. Table 7 and 8 below present the results of means comparison and measures of association, respectively.

TABLE 7. Results of means comparisons between learners' specific scores and total scores

			Sum of Squares	Mean Square	F	Sig.
Noun * Total Score	Between Groups	(Combined)	5808.81	126.279	11.306	.000
		Linearity	4739.70	4739.70	424.34	.000
		Deviation from Linearity	1069.11	23.758	2.127	.001
	Within Groups		982.919	11.170		
	Total		6791.73			
Noun-Preposition * Total Score	Between Groups	(Combined)	2388.10	51.915	6.296	.000
		Linearity	1716.83	1716.83	208.20	.000
		Deviation from Linearity	671.276	14.917	1.809	.009
	Within Groups		725.626	8.246		
	Total		3113.73			
Verb-Noun * Total Score	Between Groups	(Combined)	1983.27	43.115	6.614	.000
		Linearity	1647.31	1647.31	252.70	.000
		Deviation from Linearity	335.965	7.466	1.145	.290
	Within Groups		573.655	6.519		
	Total		2556.93			

TABLE 8. Measures of association

	R	R Squared	Eta	Eta Squared
Noun * Total Score	.835	.698	.925	.855
Noun-Preposition * Total Score	.743	.551	.876	.767
Verb-Noun * Total Score	.803	.644	.881	.776

RQ3: HOW WILL THAI EFL LEARNERS' RECEPTIVE KNOWLEDGE OF NOUNS AND COLLOCATIONS IMPACT THEIR ENGLISH SKILL PERFORMANCES?

The impacts were examined by performing zero-order correlations between learners' receptive knowledge on noun, verb-noun and noun-preposition and their performances in writing, speaking, listening, and reading. Multiple-linear regressions were then conducted among the variables of interest. Positive correlations were observed between writing and reading (r = .31, $p <$ .001), writing and listening (r = .43, $p <$ .001), reading and listening (r = .52, $p <$ .001), reading and noun (r = .19, p = .03), reading and noun preposition (r = .18, p = .03), reading and total scores (r = .17, p = .048), noun and verb-noun (r = .48, $p <$ .001), noun and noun-preposition (r = .34, $p <$ .001), noun and total score (r = 841, $p <$ .001), verb-noun and noun-preposition (r = .55, $p <$ .001), verb-noun and total score (r = .80, $p <$ .001) and noun-preposition and total score (r = .74, $p <$ .001) whereas a negative correlation was noticed between listening and speaking (r = -.18, $p <$ .03). Then, the results of multiple-linear regressions showed that Thai EFL learners' reading performance was significantly predicted by their receptive knowledge on noun *(F (1, 134) = 4.720, p = .03, R^2 = .03)*, noun-preposition *(F (1, 134) = 4.376, p = .04, R^2 = .03)* and the total score of their receptive knowledge *(F (1,*

134) = 3.983, p = .048, R^2 = .03). Meanwhile, Thai EFL learners' receptive knowledge on verb-noun did not significantly contribute to their English performances in the four skills.

DISCUSSION

The main objective of this study was to examine Thai EFL learners' receptive vocabulary knowledge and explore the impacts of such knowledge on their English-skill performances. The results of this study, first, confirmed that overall, Thai EFL learners had limited vocabulary knowledge as reflected by their total below 50% scores. Specifically, they were hardly able to recognize noun form and meaning and identify correct verb-noun collocations; yet they performed slightly better at classifying noun-preposition. Past scholars have explained that nouns are fundamental in grammatical structures together with verbs (Langacker, 1987), and the ability to recognize a noun and its meaning is closely related to the ability to infer word definition (Wehren et al., 1981). Thai EFL learners' poor recognition of nouns and forms may reflect their low level of proficiency in constructing correct sentences utilizing nouns and verbs and in comprehending a definition of a word. However, the poor performance in recognizing noun form and meaning also suggests that word frequency may not play a big influence because the learners did not score well on high, moderate, and low-frequency nouns, which is different from Marinellie and Chan's findings (2006). The results are also similar with previous findings, suggesting that verb-noun collocations are one of the most difficult ones for learners both to recognize and produce (Kim & Yoon, 2008; Nesselhauf, 2003). Another way of interpreting these results is that the so-called frequent words based on the AVL are not frequent enough for this group of learners. On the other hand, as Thai EFL learners performed marginally better on noun-preposition collocations, the result does not fully support the claim that grammatical collocations are more difficult than lexical collocations for learners (e.g., Mohajeri et al., 2013).

Another point from the results that is worth discussing is on the impacts of Thai EFL learners' receptive vocabulary knowledge on their English skill performances. The results hint at the positive impact of Thai EFL learners' receptive knowledge of noun form and meaning as well as noun-preposition on their performance on reading, which sustains the previous finding from Schmitt et al. (2011). Nevertheless, there no significant impact was found on writing, reading, and listening as suggested by previous researchers (Atas, 2018; Roche & Harrington, 2013; Uchihara & Clenton, 2018). The types of tasks performed by the learners might have influenced the non-significant impacts of the receptive knowledge impact on their skill performance, as pointed by Ertürk (2017). This study also notes that there may be other factors that contribute more significantly since the obtained R^2 from the regression analyses on noun and noun-preposition was small. The other two notes coming from the results of this study are that female and male Thai EFL learners' receptive vocabulary knowledge was not significantly different and Thai EFL learners' knowledge on noun, verb-noun, and noun-preposition have a big influence in their receptive vocabulary knowledge. The learners' knowledge on noun and collocations account for more than 50% of the variance in their receptive vocabulary knowledge, as shown in Table 8.

There has been a limited number of studies on Thai EFL learners' receptive vocabulary knowledge. Recently, Sridhanyarat (2018) investigated Thai learners' acquisition of L2 collocations between high and low proficiency levels. By using receptive and productive tasks, the study found that regardless of the proficiency levels, all the learners had difficulties to identify all the target collocations; yet verb-preposition collocations seem to be identifiable for advanced learners. The study, further, suggests the influences of L1 transfer, prior knowledge, and familiarity on the given tests. Learners would be able to identify and use correct collocations when the correct combinations existed in their mother tongue, which puts emphasis on positive transfer between L1 to L2 (Hatami, 2015). Besides, the amount of

exposure to English and the inclusion of collocational learning materials in English teaching can significantly affect learners' knowledge of collocations (Banboua, 2016; Bueraheng & Laohawiriyanon, 2016)**.** Therefore, as the implications, the present study would encourage the inclusion of collocation learning materials into English teaching as well as more frequent and intensive practices on identifying noun form and meaning in Thailand.

CONCLUSION

The findings of this study have disclosed the poor level of Thai EFL learners' receptive knowledge, specifically on recognizing noun form and meaning, verb-noun lexical collocations and noun-preposition grammatical collocations, and the significant impact of such receptive vocabulary knowledge on reading performance. The present study, therefore, strongly encourages the teaching of collocations for Thai EFL learners as it seems that Thai EFL learners cannot acquire the collocational knowledge and competence on their own. English teaching and learning materials, e.g., textbooks and modules, as well as course design and instruction at the university level in Thailand need to explicitly include integrated lessons of nouns and collocations to facilitate the development of knowledge in such areas. Thus far, the Thai English curriculum at the university level has been extensively focused on the improvement of productive skills, especially on speaking. On the other hand, EFL learners cannot achieve the level of proficient users without having sufficient knowledge of collocations. More importantly, the results of this study that indicate a low level of knowledge on noun form and meaning recognition imply a basic issue in grammatical structure among the learners.

The participants in this study were university students; their receptive vocabulary knowledge of nouns and collocations could have been improved if they had learned the materials explicitly and extensively before. This study, hence, urges the inclusion of nouns and collocations in the learning materials for students at the school level because the development of collocation recognition and use is slow and uneven among learners (Laufer & Waldman, 2011). Furthermore, despite the useful findings, it is important to acknowledge that this study should have included more types of part of speech and collocation for more comprehensive examination; this study also did not present an adequate number of references from Thai EFL learners' context because of the limited number, thereby framing the limitation of this study. It recommends future studies to explore the learners' receptive vocabulary knowledge in an experimental research design.

REFERENCES

Ackermann, K., & Chen, Y.-H. (2013). Developing the academic collocation list (ACL)- A corpus-driven and expert-judged approach. *Journal of English for Academic Purposes, 12*(4), 235-247.

Akinlotan, M., & Housen, A. (2017). Noun phrase complexity in Nigerian English: Syntactic function and length outweigh genre in predicting noun phrase complexity. *English Today, 33*(3), 31-38.

Alsager, R., & Milton, J. (2016). Investigating the relationship between vocabulary knowledge and academic success of Arabic undergraduate learners in Swansea university. *Language in Focus, 2*(2), 88-124.

Atas, U. (2018). The Role of receptive vocabulary knowledge in advanced EFL listening comprehension. *TESL-EJ*, 21(4), 1-12.

Banboua, N. (2016). Testing collocational knowledge of Yemeni EFL university students at Universiti Utara Malaysia. *Arab World English Journal (AWEJ),* 7(1), 1-18.

Barfield, A. (2012). Lexical collocations. *The encyclopedia of applied linguistics* (pp.1-5). Johns Wiley & Sons.

Basal, A. (2019). Learning collocations: Effects of online tools on teaching English adjective-noun collocations. *British Journal of Educational Technology*, *50*(1), 342-356.

Beglar, D. (2010). A Rasch-based validation of the vocabulary size test. *Language testing*, *27*(1), 101-118.

Beglar, D., & Nation, P. (2013). Assessing vocabulary. *The companion to language assessment*, *1*, 172-184.

Boers, F., Demecheleer, M., Coxhead, A., & Webb, S. (2014). Gauging the effects of exercises on verb–noun collocations. *Language Teaching Research*, *18*(1), 54-74.

Brown, J. D. (2005). *Testing in language programs.* New York, NY: Mc Graw Hill.

Bueraheng, N., & Laohawiriyanon, C. (2014). Does learners' degree of exposure to English language influence their collocational knowledge? *International Journal of English literature*, *4*(3), 1-10.

Davies, M., & Gardner, D. (2013). Academic vocabulary lists- Corpus contemporary of American English. Retrieved from Academic Vocabulary: http://www.academicvocabulary.info/x.asp

de Oliveira, L. C. (2010). Nouns in history: Packaging information, expanding explanations, and structuring reasoning. *The History Teacher*, *43*(2), 191-203.

Ertürk, Z. O. (2017). The effects of receptive and productive learning tasks on EFL learners' knowledge of collocation and meaning. *Eurasian Journal of Applied Linguistics*, *3*(2), 59-73.

Fang, Z., Schleppegrell, M. J., & Cox, B. E. (2006). Understanding the language demands of schooling: Nouns in academic registers. *Journal of literacy research*, *38*(3), 247-273.

Fatkullina, F. G., Kazantseva, E. A., K.Valiakhmetova, E., Sulejmanova, A. K., & Anokhina, S. Z. (2018). Semantic synergy of the noun and the verb. Modern Journal of Language Teaching Methods (MJLTM), 8(9), 353-360.

Gardner, D., & Davies, M. (2014). A new academic vocabulary list. *Applied linguistics*, *35*(3), 305-327.

Hajebi, M. (2018). Language proficiency, collocational knowledge, and the role of L1 transfer: A correlational study of Iranian EFL learners. *Studies*, *5*(4), 141-148.

Hatami, S. (2015). Collocations in Farsi L2 learners of English: The role of proficiency and L1 language transfer (Master's thesis, UiT Norges arktiske universitet).

Hunston, S. (2002). *Corpora in applied linguistics*. Cambridge, UK: Cambridge University Press.

Jiang, F. K., & Hyland, K. (2018). Nouns and academic interactions: A neglected feature of metadiscourse. *Applied linguistics*, *39*(4), 508-531.

Kilic, M. (2019). Vocabulary knowledge as a predictor of performance in writing and speaking: A case of Turkish EFL learners. *PASAA: Journal of Language Teaching and Learning in Thailand*, *57*, 133-164.

Kim, H., & Bae, J. (2012). The relationship of collocation competence with reading and writing skills. *ENGLISH TEACHING (영어교육)*, *67*(3), 95-119.

Kim, H., & Yoon, H. (2008). Effects of predictability in L1 on the use of L2 verb-noun collocations. *ENGLISH TEACHING (영어교육)*, *63*(2), 237-259.

Kuczok, M. (2016). The interplay of metaphor and metonymy in English noun+ noun compounds. *Studies in Lexicogrammar: Theory and Applications* (pp. 193-210). John Benjamins Publishing Company.

Langacker, R. W. (1987). Nouns and verbs. *Language*, 63(1), 53-94.

Lantolf, J., & Tsai, M. H. (2018). L2 developmental education and systemic theoretical instruction: The case of English verb + noun collocations. In *Language Learning and Language Teaching* (pp. 29-53). John Benjamins Publishing Company.

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

Marinellie, S. A., & Chan, Y. L. (2006). The effect of word frequency on noun and verb definitions: A developmental study. *Journal of Speech, Language, and Hearing Research*. 49(5), 1000-1021.

Masrai, A., & Milton, J. (2017). Recognition vocabulary knowledge and intelligence as predictors of academic achievement in EFL context. *TESOL International Journal*, *12*(1), 128-142.

McGhee-Bidlack, B. (1991). The developement of noun definitions: a metalinguistic analysis. Journal of Child Language, 417-434.

McMillan, J. H. (2012). Educational research fundamentals for the consumer (6th ed.). Boston, MA: Pearson.

Men, H. (2018). Collocation studies in second-language learner. In H. Men, Vocabulary Increase and Collocation Learning: A Corpus-based Cross-sectional Study of Chinese Learners of English (pp. 35-58). Singapore: Springer.

Miralpeix, I., & Muñoz, C. (2018). Receptive vocabulary size and its relationship to EFL language skills. *International Review of Applied Linguistics in Language Teaching*, *56*(1), 1-24.

Mochida, K., & Harrington, M. (2006). The yes/no test as a measure of receptive vocabulary knowledge. *Language Testing*, *23*(1), 73-98.

Mohajeri, M., Ketabi, S., Dehnoo, M. A., Yousefvand, G., Vency, H. J., Ramganesh, E., & Aidinlou, N. A. (2013). The knowledge and use of collocations and their relation with English speaking proficiency among upper-intermediate to advanced Iranian EFL learners. *ELT Voices–India, 3*(5), 1-30.

Murao, R. (2004). L1 influence on learners' use of high-frequency verb+ noun collocations. *ARELE: annual review of English language education in Japan*, *15*, 1-10.

Namvar, F. (2012). The relationship between language proficiency and use of collocation by Iranian EFL students. *3L: Language, Linguistics, Literature®*, 18(3), 41-52.

Nation, P. (1990). *Teaching and learning vocabulary*. Boston, MA: Heinle ELT.

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

Nation, P., & Webb, S. (2011). Researching and Analyzing Vocabulary. Boston: Heinle Cengage Learning.

Nesselhauf, N. (2003). The use of collocations by advanced learners of English and some implications for teaching. *Applied linguistics*, *24*(2), 223-242.

Nguyen, T. M. H., & Webb, S. (2016). Examining second language receptive knowledge of collocation and factors that affect learning. *Language Teaching Research*, *21*(3), 298-320.

Niitemaa, M. L., & Pietilä, P. (2018). Vocabulary skills and online dictionaries: A study on EFL learners' receptive vocabulary knowledge and success in searching electronic sources for information. *Journal of Language Teaching and Research*, *9*(3), 453-462.

Pecorari, D., Shaw, P., & Malmström, H. (2019). Developing a new academic vocabulary test. *Journal of English for Academic Purposes*, *39*, 59-71.

Qian, D. D. (2002). Investigating the relationship between vocabulary knowledge and academic reading performance: An assessment perspective. *Language learning*, *52*(3), 513-536.

Roche, T., & Harrington, M. (2013). Recognition vocabulary knowledge as a predictor of academic performance in an English as a foreign language setting. *Language Testing in Asia*, *3*(1), 1-13.

Schmitt, N. (2000). Vocabulary in language teaching. Cambridge, UK: Cambridge University Press.

Schmitt, N., Jiang, X., & Grabe, W. (2011). The percentage of words known in a text and reading comprehension. *The Modern Language Journal*, *95*(1), 26-43.

Sridhanyarat, K. (2018). Thai learners' acquisition of L2 collocations: An interlanguage perspective. *GEMA Online® Journal of Language Studies*, *18*(1), 1-21.

Stæhr, L. S. (2008). Vocabulary size and the skills of listening, reading, and writing. *Language Learning Journal*, *36*(2), 139-152.

Szudarski, P., & Carter, R. (2016). The role of input flood and input enhancement in EFL learners' acquisition of collocations. *International Journal of Applied Linguistics*, *26*(2), 245-265.

Uchihara, T., & Clenton, J. (2018a). Investigating the role of vocabulary size in second language speaking ability. *Language Teaching Research*, 24(4), 1-17.

Uchihara, T., & Harada, T. (2018b). Roles of vocabulary knowledge for success in English-medium instruction: Self-perceptions and academic outcomes of Japanese undergraduates. *TESOL Quarterly*, *52*(3), 564-587.

Webb, S. (2008). Receptive and productive vocabulary sizes of L2 learners. *Studies in Second language acquisition*, *30*(1), 79-95.

Wehren, A., De Lisi, R., & Arnold, M. (1981). The development of noun definition. *Journal of Child Language*, *8*(1), 165-175.

APPENDIX A

Test of Receptive Knowledge of Academic Nouns

Time: 20 minutes

Instructions: This test has been designed to assess your receptive knowledge of academic nouns. There are 10 items (1-10). Each item consists of six nouns (a-f) listed on the left and three definitions listed on the right. You are to write the letters in front of the nouns to the corresponding definitions.

For Example:

- g. table
- h. group
- i. change   ___d___ an area of knowledge studied in a school
- j. subject   ___c___ the act or result of something becoming different
- k. system   ___f___ an institution at the highest level of education where you can
- l. university   study for a degree or do research

1
- a. process
- b. research   _____ a detailed study to discover new information
- c. population   _____ the information that you get from a scientific study
- d. result   _____ a series of actions that you take to achieve a result
- e. level
- f. use

2
- a. relationship
- b. development   _____ facts or information used to find out things
- c. history   _____ the way in which two things are connected
- d. model   _____ the growth or process of creating something new or more
- e. policy   advanced
- f. data

3
- a. analysis
- b. interest   _____ facts about a situation, person or event
- c. difference   _____ the position or purpose that someone or something has in a
- d. information   situation
- e. control   _____ a detailed examination of something to further understand
- f. role   about it

4
- a. factor
- b. material   _____ substance that things can be made from
- c. condition   _____ one of several things that influence something
- d. group   _____ the state of something or a situation that must exist in order
- e. culture   for something else to happen
- f. image

5
- a. rate
- b. subject   _____ the information and skills that you gain through education and
- c. technology   experience
- d. knowledge   _____ encouragement and help that you give to someone or
- e. approach   something
- f. support   _____ a way of dealing with someone or something

6
- a. strategy
- b. response   _____ a plan to achieve a particular purpose
- c. performance   _____ how well a person or machine does a task
- d. source   _____ a place, person or thing that you get something from
- e. period
- f. science

7
- a. term
- b. goal   _____ an aim or purpose
- c. theory   _____ a formal set of ideas to explain something
- d. project   _____ a supply of something that a person or an organization has
- e. resource
- f. movement

9
- a. task
- b. finding   _____ a hard work that someone has to do
- c. example   _____ something that supports or explains what you say
- d. structure   _____ information that is discovered as the result of research
- e. context
- f. relation

10
- a. production
- b. challenge   _____ a helpful or good effect that something has
- c. impact   _____ an investigation of the opinions or behavior of a particular
- d. survey   group of people
- e. benefit   _____ the powerful effect that something has on someone or
- f. pattern   something

Answer Keys for the Test of Receptive Knowledge of Academic Nouns

1. b d a
2. f a b
3. d f a
4. b a c
5. d f e
6. a c d
7. b c e
8. d c f
9. a c b
10. e d c

APPENDIX B

Test of the Ability to Recognize Prepositions Associated with Academic Nouns

Time: 20 minutes

Instructions: This test has been designed to assess your ability to recognize prepositions associated with academic nouns. It encompasses 30 items (1-30). Each item consists of an academic noun stem embedded in a sentence, and four options: three prepositions and "I do not know". You are to choose the preposition option which is most likely to occur with the academic noun. In case you do not know the answer, simply choose the option "I do not know".

For example:

They have a free trade agreement _____ Australia.
● A. with
B. towards
C. amid
D. I do not know.

1. They are carrying out some research _____ the languages of dolphins.
   A. on
   B. onto
   C. up
   D. I do not know.
2. The result _____ the opinion poll showed that most women supported this action.
   A. of
   B. over
   C. across
   D. I do not know.
3. The decision may delay the process _____ economic reforms.
   A. in
   B. ahead
   C. of
   D. I do not know.
4. The school encourages the development _____ student's talents.
   A. up
   B. above
   C. of
   D. I do not know.
5. My aim is to synthesize data _____ all the surveys.
   A. amid
   B. from
   C. near
   D. I do not know.
6. Do you have any information _____ the method used in this study?
   A. over
   B. about
   C. onto
   D. I do not know.
7. The US has a very close relationship _____ the UK.
   A. towards
   B. near
   C. with
   D. I do not know.
8. The media plays a major role _____ influencing people's opinions.
   A. about
   B. onto
   C. in
   D. I do not know.
9. I am interested in Clare's analysis _____ the situation.

    A. of
    B. onto
    C. towards
    D. I do not know.
10. This is regarded as the crucial factor _____ deciding who should get priority.
    A. over
    B. in
    C. off
    D. I do not know.
11. Crude oil is used as the raw material _____ making plastics.
    A. ahead
    B. behind
    C. for
    D. I do not know.
12. A good training program is one of the conditions _____ successful industry.
    A. about
    B. along
    C. for
    D. I do not know.
13. He has a wide knowledge _____ painting and music.
    A. of
    B. onto
    C. above
    D. I do not know.
14. There is strong public support _____ the change.
    A. off
    B. for
    C. onto
    D. I do not know.
15. She gave the greatest performance _____ her career.
    A. up
    B. of
    C. about
    D. I do not know.
16. We need to try alternative approaches _____ the problem.
    A. to
    B. away
    C. off
    D. I do not know.
17. The tiny window was the only source _____ light.
    A. along
    B. towards
    C. of
    D. I do not know.
18. The library is an enormous resource _____ historians of the period.
    A. across
    B. for
    C. about
    D. I do not know.
19. The committee will draw up a strategy _____ dealing with future foods.
    A. up
    B. at
    C. for
    D. I do not know.
20. According to the theory _____ relativity, nothing can travel faster than light.
    A. of
    B. over
    C. onto
    D. I do not know.
21. Travelling by train is still one of the safest methods _____ transport.

    A.   against
    B.   of
    C.   off
    D.   I do not know.
22. They pursue the goal _____ providing free education for everyone.
    A.   of
    B.   towards
    C.   along
    D.   I do not know.
23. There was an interesting article _____ vegetarianism in the paper yesterday.
    A.   over
    B.   onto
    C.   on
    D.   I do not know.
24. We are seeking a safe education environment _____ future generations.
    A.   ahead
    B.   about
    C.   for
    D.   I do not know.
25. Could you please give me an example _____ the improvements you have mentioned?
    A.   over
    B.   of
    C.   into
    D.   I do not know.
26. The government faced the daunting task _____ economic reconstruction.
    A.   over
    B.   onto
    C.   of
    D.   I do not know.
27. The facts of this case do not justify a finding _____ negligence.
    A.   of
    B.   into
    C.   over
    D.   I do not know.
28. Her speech made a profound impact _____ everyone.
    A.   on
    B.   onto
    C.   towards
    D.   I do not know.
29. One of the many benefits _____ foreign travel is learning how to cope with the unexpected.
    A.   about
    B.   into
    C.   of
    D.   I do not know.
30. The researchers undertook a sample survey _____ schools in the city.
    A.   from
    B.   of
    C.   out
    D.   I do not know.

Answer Keys for the Test of the Ability to Recognize Prepositions Associated with Academic Nouns

1. A	8. C	15. B	22. A	29. C
2. A	9. A	16. A	23. C	30. B
3. C	10. B	17. C	24. C	
4. C	11. C	18. B	25. B	
5. B	12. C	19. C	26. C	
6. B	13. A	20. A	27. A	
7. C	14. B	21. B	28. A	

APPENDIX C

Test of the Ability to Recognize Associated Verb-noun Collocations

Time: 20 minutes

Instructions: This test has been designed to assess your ability to recognize associated verb-noun collocations. There are 30 items (1-30). Each item contains an academic noun stem and four options: three verbs and "I do not know". You are to choose the verb option which is most likely to occur with the academic noun. In case you do not know the answer, simply choose the option "I do not know".
For example:

_____ (an) agreement
- ● A. reach
- B. control
- C. determine
- D. I do not know

1. _____ (a) research
    - A. integrate
    - B. conduct
    - C. increase
    - D. I do not know.
2. _____ (a) result
    - A. identify
    - B. follow
    - C. obtain
    - D. I do not know.
3. _____ (a) process
    - A. begin
    - B. install
    - C. teach
    - D. I do not know.
4. _____ (the) development
    - A. state
    - B. bring
    - C. encourage
    - D. I do not know.
5. _____ data
    - A. allow
    - B. contain
    - C. collect
    - D. I do not know.
6. _____ information
    - A. initiate
    - B. provide
    - C. yield
    - D. I do not know.
7. _____ (a) relationship
    - A. view
    - B. restore
    - C. establish
    - D. I do not know.
8. _____ (the) role
    - A. equalize
    - B. assume
    - C. direct
    - D. I do not know.

9. _____ analysis
    - A. conduct
    - B. advance
    - C. balance
    - D. I do not know.
10. _____ factors
    - A. identify
    - B. conduct
    - C. form
    - D. I do not know.
11. _____ material
    - A. accumulate
    - B. organize
    - C. provide
    - D. I do not know.
12. _____ conditions
    - A. display
    - B. probe
    - C. create
    - D. I do not know.
13. _____ knowledge
    - A. gather
    - B. acquire
    - C. affect
    - D. I do not know.
14. _____ support
    - A. provide
    - B. develop
    - C. undermine
    - D. I do not know.
15. _____ performance
    - A. identify
    - B. achieve
    - C. enhance
    - D. I do not know.
16. _____ (an) approach
    - A. adopt
    - B. stick
    - C. resist
    - D. I do not know.
17. _____ (a) source
    - A. provide

18. _____ resources
    - B. develop
    - C. differ
    - D. I do not know.
    - A. describe
    - B. denote
    - C. allocate
    - D. I do not know.
19. _____ (a) strategy
    - A. harvest
    - B. develop
    - C. emphasize
    - D. I do not know.
20. _____ (the) theory
    - A. avoid
    - B. apply
    - C. abstract
    - D. I do not know.
21. _____ (a) method
    - A. care
    - B. apply
    - C. dictate
    - D. I do not know.
22. _____ (a) goal
    - A. determine
    - B. expand
    - C. achieve
    - D. I do not know.
23. _____ (an) article
    - A. publish
    - B. follow
    - C. enforce
    - D. I do not know.
24. _____ (an) environment
    - A. facilitate
    - B. create
    - C. extend
    - D. I do not know.
25. _____ (an) example
    - A. contribute
    - B. construct

C. provide
D. I do not know.
26. _____ (a) task
A. form
B. express
C. complete
D. I do not know.
27. _____ findings
A. draft

B. report
C. generate
D. I do not know.
28. _____ (the) impacts
A. pass
B. impose
C. assess
D. I do not know.
29. _____ benefits

A. provide
B. restrict
C. raise
D. I do not know.
30. _____ (a) survey
A. deepen
B. conduct
C. denote
D. I do not know.

Answer Keys for Test of the Ability to Recognize Associated Verb-noun Collocations

1. B	8. B	15. C	22. C	29. A
2. C	9. A	16. A	23. A	30. B
3. A	10. A	17. A	24. B	
4. C	11. C	18. C	25. C	
5. C	12. C	19. B	26. C	
6. B	13. B	20. B	27. B	
7. C	14. A	21. B	28. C	

ABOUT THE AUTHORS

Tran Minh Hoang is an English lecturer at School of Languages and General Education (SOLGEN), Walailak University, Thailand. He completed his M.A. in Applied Linguistics (International Program) at Mahidol University, Thailand. Additionally, he gained TESOL certificate from Australasian Training Academy, Australia and TKT certificates from Cambridge ESOL examinations. His research interests are academic vocabulary learning and teaching, testing and evaluation, second language acquisition, and information technology and learning process.

Budi Waluyo is a full-time English lecturer at School of Languages and General Education, Walailak University Thailand. He finished his M.A. at the University of Manchester, U.K. and Ph.D. at Lehigh University, U.S.A. He received International Fellowships Program from Ford Foundation, USA, and Fulbright Presidential Scholarship from the U.S. government. His research interests involve education policy, educational technology, ELT, and international education.