

การศึกษาคำปรากฏร่วมของคำศัพท์ทางวิชาการแบบอิงตามคลังข้อมูล ในบทความในวารสาร

A Corpus-Based Study of Academic Collocations Used in Journal Articles

ดวงทิพย์ โอเจริญ¹ และอรอุษา พิมพ์สวัสดิ์^{1*}

Duangthip Ocharoen¹ and On-Usa Phimsawat^{1*}

Received: August 27, 2024; Revised: April 11, 2025; Accepted: April 21, 2025

บทคัดย่อ

การจัดวางคำร่วมกันเป็นเรื่องยากโดยเฉพาะสำหรับผู้เรียนภาษาอังกฤษเนื่องจากภาษาแม่มีอิทธิพลต่อผู้เรียน การศึกษานี้ใช้รูปแบบคลังข้อมูลในการวิเคราะห์คำนามที่ปรากฏในบทความในวารสาร บทความนี้จะสำรวจความถี่รูปแบบของการจัดวางคำนามร่วมกัน 10 อันดับแรกซึ่งนำมาจากวารสารสามอันดับแรกตามการจัดอันดับวารสาร SCImago (SJ) ระหว่างปีพ.ศ. 2563 ถึง 2564 ข้อมูลจากบทความในวารสารวิชาการ 60 บทความรวบรวมจากเว็บไซต์ ResearchGate และวิเคราะห์โดยโปรแกรม Antconc เพื่อตรวจสอบความถี่ของคำนาม และ TagAnt เพื่อจำแนกประเภทของการวิเคราะห์รูปแบบการจัดวางได้ชี้ให้เห็นการจัดวางคำนามร่วมกันหลายชุด ซึ่งรวมถึงการจัดวางที่ค่อนข้างจำกัด เช่น 'foreign + language', 'learning + English' และ 'participants + in' และการจัดวางที่ค่อนข้างอิสระ เช่น 'allow + students', 'presenting + learners', 'analyze + data' ผลการวิจัยเหล่านี้ให้คำแนะนำสำหรับผู้เรียนภาษาอังกฤษที่ต้องการปรับปรุงกลยุทธ์การเรียนรู้คำศัพท์ของตน

คำสำคัญ: คำนาม คำปรากฏร่วม คำปรากฏร่วมทางวิชาการ คลังข้อมูลภาษา บทความวิชาการ

Abstract

Collocations are particularly challenging for English as a Foreign Language learners as a result of their mother tongues' effect on them. This study employs a corpus-based approach to analyze noun collocations in academic journal articles. This paper explores the frequency and patterns of the ten most frequent noun collocations in articles from the top three journals according to the SCImago Journal Rank (SJ) between 2020 and 2021. Data from 60 academic journal articles were collected from ResearchGate and analyzed through AntConc to extract frequent noun collocations, while TagAnt was used to verify word classifications. Analysis of collocation patterns reveals both restricted and free noun collocations. These include those, which are quite restricted, as is the case with such noun collocation examples as 'foreign + language', 'learning + English', and 'participants + in', and those, which are relatively flexible, for example, 'allow + students', 'presenting + learners', 'analyze + data'. These findings provide insights for English learners aiming to enhance their vocabulary acquisition strategies.

Keywords: Nouns, Collocations, Academic Collocations, Corpus, Journal Articles

¹ สาขาวิชาภาษาอังกฤษเพื่อการสื่อสาร คณะมนุษยศาสตร์และสังคมศาสตร์ มหาวิทยาลัยบูรพา, English for Communication, Faculty of Humanities and Social Sciences, Burapha University

*Corresponding author e-mail: onusa@buu.ac.th

Introduction

Corpus linguistics is the study of language based on real-life examples of language usage (McEnery & Wilson, 2001). “Corpus” derives from Latin, meaning body, with corpora being the plural form (Baker, 2010). Crystal (2003) defines a corpus as a “large and structured compilation of linguistic data, comprising written texts or transcriptions of recorded speech, which is used as a foundation for linguistic description or to substantiate theories about a language”. Dash (2008) states that a language corpus serves as an empirical standard for validating the use of linguistic features within a language. Corpora offer valuable data on frequency, register, and language usage (Bennett, 2010).

Checking frequency is the most fundamental aspect of corpus analysis (Baker, 2010; Szudarski, 2018). Numerous studies utilize frequency analysis to investigate academic terminology. For instance, it can be used to evaluate coverage (Chen & Ge, 2007; Mozaffari & Moini, 2014; Shabani & Tazik, 2014). Additionally, corpora offer another significant advantage for lexical research: they enable the identification of frequent lexical combinations, known as collocations (Baker, 2010). According to Hill (2000), the English language comprises millions of words and countless potential combinations. The primary and most notable aspect of collocation is the vast number of distinct collocations that are present in English.

English is a complex language. In many cases, over half a million words can be employed in sentences of nearly endless complexity, particularly in academic writing. Yakhontova (2003) describes four aspects of English academic style: formal style, cautious writing, specialized academic vocabulary, and appropriate grammar usage. Kirub (2014) states that the capacity to communicate clearly in research is arguably the most broadly beneficial of all educational skills.

Several researchers have emphasized the importance of vocabulary in relation to areas such as vocabulary and language proficiency (Meara, 1992; Schmitt, 2000; Viera, 2016). Viera (2016) states that learning vocabulary entails not just learning new words but also understanding their functions and applications in various contexts and situations. As well as reading comprehension, vocabulary helps readers understand the content and helps translate some unfamiliar words by reading the full context.

Collocations are a natural part of vocabulary, seem to be a challenge for EFL learners. There have been many studies on the application of collocations, with results that indicate learners usually demonstrate limited proficiency (Boonraksa & Naisena, 2021; Mongkolchai, 2008; Ridha & Riyahi, 2011; Tungyai & Rakpa, 2021; Yumancee & Phoocharoensil, 2013). This challenge mainly stems from the influence of EFL learners’ mother tongues, as learners tend to transfer collocational patterns from their first language into English, which often leads to unnatural or incorrect combinations. Lewis (2000) contends that while it is easy to deconstruct collocations into their component words, assembling words to form natural collocations is considerably more complex.

Given the centrality of nouns in academic writing as subjects, objects, and key conceptual elements this study focuses specifically on noun collocations. Research has consistently shown that nouns are the most frequently occurring word class in academic texts, reflecting their crucial role in constructing meaning and organizing information. Therefore, analyzing noun collocational patterns not only addresses a major area of difficulty for EFL learners but also aligns with the linguistic characteristics of academic discourse.

The goal of the study is to examine the most commonly employed noun collocations and collocation patterns in journal articles, evaluate their usage, and analyze the similarities and differences in noun collocations across each journal. This investigation is guided by the following research questions:

1. What are the top ten nouns that appear the most in each journal article?
2. What are the most frequently used noun collocations and their patterns (adjective-noun, verb-noun, noun-preposition) in journal articles?

Literature Review

1. Vocabulary and Challenges in EFL Learning

The lists of frequently occurring words include The General Service List (GSL), developed by West in 1953, and The Academic Word List (AWL), created by Coxhead in 2000. The GSL contains high frequency words that are based on frequency and semantic relevance, thus providing learners with basic lexicon for general communication contexts. The AWL, on the other hand, handles words that are most frequently used in academic settings. The lexical data is derived from a 3.5 million word corpus of academic prose.

A substantial number of studies has explored the challenges faced by learners of English when using academic vocabulary across different subjects (Martínez et al., 2009; Mozaffari & Moini, 2014). For example, compared to the findings of Coxhead (2000), Mozaffari and Moini (2014) found that the frequency of AWL terms in academic research was relatively low (4.94%). While Vongpumivitch et al. (2009), studied applied linguistics, found that the vocabulary coverage was quite high at about 11.17%. Similarly, Khani and Tazik (2013), analyzed the coverage of academic word lists (AWL) in research articles at 11.96%. Most studies emphasize the importance of academic vocabulary, but also indicate variations in AWL term frequency depending on the discipline.

From a pedagogical perspective, Phiwma (2023) demonstrated that blended learning with game activities improved vocabulary, grammar, and formal English presentation idioms among students at the university level. This suggests that EFL learners may be assisted in vocabulary instruction which is situated within meaningful contexts. However, challenges remain, especially when lexis appears as part of multi-word units or academic collocations, which necessitate more specialized knowledge. Similarly, Boonphoie and Bhoomkhokrak (2024) found that the integration of CLIL (Content and Language Integrated Learning) and PBL (Project-Based Learning) reinforced EFL learners' reading comprehension and facilitated vocabulary and structural development through contextually relevant academic content. This highlights the necessity of active learner participation and context-rich learning in developing denser lexical knowledge.

2. Types of Collocations

Cowie (1998) and Howarth (1996) classify collocations to assist in the understanding of language complexity in both academic and non-academic contexts. Cowie categorize collocations into three categories: free combinations, restricted collocations, and idioms. Howarth (1996) identify them into four types: restricted collocations, free collocations, pure idioms, and figurative idioms. Howarth (1998) emphasizes the significance of the function of restricted collocations in language processing within the context of understanding language mechanisms, rather than how it is formed. He argues that they contribute to an awareness of the storage patterns of compound units and communicative function of linguistic conventionality. Additionally, Howarth emphasizes the need to accommodate existing stylistic conventions in formal academic writing and highlights the importance of the effectiveness of communication and clarity. In his opinion, compliance with language conventions in writing enables the reader to concentrate more on content than form, thereby resulting in improved understanding.

Different researchers divide collocations into several categories. India (2018) and McCarthy (2017) group collocations into six categories: (1) Adjectives and Nouns, (2) Nouns and Verbs, (3) Nouns and Nouns, (4) Verbs and Phrases with Prepositions, (5) Verbs and Adverbs, and (6) Adverbs and Adjectives. McCarthy et al. (2010) expand this to seven categories, including complex multi-word collocations. According to Lewis (2000), collocations are divided into lexical collocations, which consist of two significant lexical components (verb, noun, adjective, or adverb), and grammatical collocations, which combine a lexical component with a grammatical word, typically a preposition.

3. Collocations in Academic Writing

Even though there has been extensive research on AWL vocabulary and collocations, there has been limited investigation on adjective and noun collocations in language and linguistics journals. Hence, the aim of this study is to address this gap by investigating the most frequent noun collocations, along with adjective-noun, verb-noun, and noun-preposition patterns, in English-related scholarly journals.

In academic articles, nouns are the most frequently used word type, making it crucial to understand how grouping them enhances language proficiency and effective academic writing. Thus, this research examines the three groups of noun collocations: adjectives and nouns, verbs and nouns, and nouns and prepositions.

Many studies have examined at the most common word types. The results of the analysis showed that nouns are the most common (Nilsson, 2019; Trinant & Yodkamlue, 2019). Additionally, several studies have investigated EFL learners' proficiency in adjective and noun collocations (Dukali, 2018; Ghaniabadi et al., 2015; Takač & Lukač, 2013), as well as the distribution of noun collocations in research articles (Ang et al., 2017; Peacock, 2012). However, despite these insights, learners still face difficulties in mastering collocations, particularly in academic settings, which will be discussed in the next section.

4. Challenges in Learning Academic Collocations

Many studies have found that most EFL learners encounter significant difficulties with verbs and nouns, as well as adjectives and nouns (Alotaibi, 2014; Dukali, 2018; Ridha & Riyahi, 2011). Verbs and nouns have received considerable attention in research (Bazzaz & Samad, 2011; Bazzaz, 2013; Holtz, 2007; Ordem & Bada, 2016; Putra & Suhardijanto, 2019; Sanguannam, 2017; Uçar & Yükselir, 2015). Conversely, adjectives and nouns are less

examined, with the majority of studies failing to address research articles (Brett et al., 2021; Bueraheng et al., 2014; Ghaniabadi et al., 2015; Takač & Lukač, 2013).

In the context of EFL learners of Thailand, studies found notable findings on collocation usage. Boonraksa and Naisena (2021) conducted a study of collocation errors found in Thai university students, and the results showed that all levels of proficiency exhibited a high frequency of errors, especially in Adjective + Noun and Verb + Preposition collocations. The primary causes of these errors were L1 transfer, synonym misapplication, and lack of collocational competence. This is consistent with Ahmad and Riaz (2024), who observed that Punjab University students in Pakistan also experienced similar difficulties due to high collocational competence in Urdu but limited proficiency in English collocations. Similarly, Nampanya and Wangmo (2020) found Thai university students received moderate marks in phrasal verb collocation tasks but still committed errors due to literal translation from their L1. This illustrates the inherent difficulty Thai EFL learners face in using multi-word expressions with context-dependent meaning, which further adds to the difficulty of learning academic collocations. Furthermore, Harta et al. (2021) focused on lexical collocation errors in students' writings and have categorized these errors into five types: verb+noun/pronoun (PP), adjective+noun, adverb+adjective, noun+noun, and verb+adverb. It was thus concluded that students commit such errors mainly due to a lack of collocation competence in their own language, and sometimes, external factors include synonym misapplication, semantic overgeneralization, and lexical approximation.

EFL learners in general therefore require more rigorous instruction in collocations, especially in academic environments. The studies prove that learners face difficulties, particularly in distinguishing restricted versus free collocations, which result in errors in academic writing. This highlights that examining noun collocation patterns from an academic writing perspective is extremely significant in helping learners overcome such challenges. Since nouns are the most frequently used word class in academic writing, analyzing the most common nouns and their collocational patterns, specifically the top ten nouns appearing in journal articles provides valuable insights into typical academic discourse structures. Such an approach directly supports the study's focus on addressing collocational challenges faced by learners.

Conceptual Framework

This research is an extension of prior studies regarding collocation in academic writing, especially from the EFL context. As revealed in Section 4, multiple studies (e.g., Alotaibi, 2014; Dukali, 2018; Ridha & Riyahi, 2011) have indicated that students of EFL face difficulties with noun-based collocations due to the problem of L1 interference, synonym misapplication, and lack of exposure to authentic academic texts.

Based on Howarth's (1998) classification of collocations and Lewis' (2000) distinction between lexical and grammatical collocations, this study focuses on noun collocations across three primary structures: Adjective + Noun, Verb + Noun, and Noun + Preposition. According to Lewis (2000), collocations are divided into lexical collocations, which consist of two significant lexical components, and grammatical collocations, which combine a lexical component with a grammatical word.

The framework is applied in this study to analyze noun-based collocations in EFL academic writing. Further, the classification of collocations by Howarth's (1998) is adopted to explore restricted collocation and free collocation use in academic discourse. Additionally, this study considers collocation error categories identified by Boonraksa and Naisena (2021) and Harta et al. (2021), particularly in relation to EFL learners. This conceptual framework serves as a foundation for analyzing noun collocations in academic writing, with the goal of improving pedagogical approaches and instructional strategies for EFL students. Therefore, this study examines noun collocations by analyzing three primary patterns: adjectives and nouns, verbs and nouns, and noun and preposition, which are prevalent in academic articles.

Methodology

Association patterns are measurable relationships that show how traits and variations are connected to contextual factors. In corpus-based studies, it is essential to analyze linguistic features by taking these "association patterns" into account (Biber et al., 1998). This research aims to investigate the frequency of academic vocabulary and noun collocations, key elements of association patterns. Thus, a corpus-based methodology was adopted, and the analysis was divided into two general areas: examining academic vocabulary within journal articles and examining the patterns of noun collocations.

The collection comprises research articles that focus on language and linguistics topics, categorized by the SCImago Journal Rank (SJR). Consequently, the data obtained is limited to the fields of languages, linguistics, and communication. Owing to certain constraints, such as limited access to some journals, this study selected the top three ranked journals with a focus on examining the noun collocations in language and linguistics journals. The corpus contains approximately 1 million words. Specific terminology employed in this research is discussed in the subsequent section.

1. Corpus Creation

Three high-ranking journals were identified and chosen by the SCImago Journal Rank website (SCImago): Applied Linguistics, Modern Language, and Communication Monographs, with 20 articles selected from each journal. The second-ranked journal of Communication was excluded since it had only started publishing in 2017. Due to the importance of language and communication articles to the research, all selected journals are from the Language & Linguistics field and are among the top six in this category. Articles were obtained from the journals and ResearchGate (www.researchgate.net) in 2020 - 2021.

The research focused on frequency and collocations, for which a specialized software tools were required for analysis. AntConc, designed by Laurence Anthony in 2002, was utilized to analyze the corpus. Although it may not include all features provided by commercial packages, AntConc has been widely recognized for its effectiveness in technical writing courses, providing fundamental tools for corpus analysis via a user-friendly interface and is distributed free under a freeware license (Anthony, 2005). In addition, TagAnt, a tool for verifying word classes and tagging specified lexical, was used to verify noun tagging (Anthony, 2022).

The article selection process began by searched for globally recognized language and communication journals that are published online. Since the SCImago Journal Rank website does not include a category for language and communication, journals included in the language and linguistics category are deemed relevant. Once the journals were selected, articles were compiled into text files that can be processed with software.

- (1) High ranking in the Language & Linguistics category according to SCImago Journal Rank (SJR).
- (2) Relevance to the study (i.e., focus on language, linguistics, and communication).
- (3) Online accessibility
- (4) Publication consistency (journals that have been actively publishing during 2020 - 2021)

2. Data Processing

Articles were organized into separate folders for each journal, resulting in three files. Microsoft Word was utilized to convert PDF files to Word (.docx) format for the purpose of word count analysis. Texts were stripped of tables, diagrams, appendices, and reference lists, retaining only the introduction, methodology, results, and discussion sections. Subsequently, files were converted into text (.txt) format for compatibility with corpus analyzers.

3. Corpus Analysis

The software AntConc was used for corpus analysis. To verify word types and identify nouns, TagAnt was employed. The top 10 most frequent nouns from each journal were selected for further analysis based on their raw frequency counts within corpus. The frequency of these nouns and their collocations (both adjective-noun and noun-verb combinations) was investigated using the Concordance and Collocates sections of AntConc.

Results

1. Results of Research Question 1: What are the top ten nouns that appear the most in the journal articles?

The analysis began with identifying nouns present in three journals: Applied Linguistics, Modern Language, and Communication Monographs. A total of 165,480 nouns were identified across the entire corpus, which consisted of 1,009,016 words. Subsequently, an analysis was conducted on the ten most frequently occurring nouns according to Table 1.

Table 1 Top 10 Frequent Nouns in Each Journal

Journal Category	Top Nouns
Modern Language journals Communication Monographs Applied Linguistics journals	language, students, study, participants, learners, English, data, time research, role

The three journals share similarities in their most common nouns while also exhibiting notable differences, as reflected in Table 1. Modern Language journals contained most of the frequently occurring nouns, with eight appearing as the most common: ‘language’, ‘students’, ‘study’, ‘participants’, ‘learners’, ‘English’, ‘data’, and ‘time’, the least frequent occurrence of which being ‘role’. In comparison, Communication Monographs had the most instances of ‘research’ and ‘role’, with a smaller number of shared nouns such as ‘language’, ‘students’, ‘learners’, ‘English’, ‘data’, and ‘time’. The results show that although the three journals share an interest in language and linguistics, the priority given to individual academic words differs according to their respective research focuses. Table 2 provides a comparative analysis of the ten most common nouns in each journal, allowing a more precise comparison of their frequency among the three journal types. The abbreviations used in the table are as follows: ALJ refers to Applied Linguistics Journals, MLJ refers to Modern Language Journals, and CMJ refers to Communication Monographs Journals.

Table 2 The top ten nouns classified by journals

Words	Appear in journals		
	ALJ	MLJ	CMJ
language	1003	1126	179
students	607	732	61
study	280	613	478
participants	315	554	496
research	322	409	446
learners	204	695	N/A
English	327	530	9
Role	291	109	350
Data	233	304	194
time	231	291	203

*N/A was the noun “learners” was not found in the main content (introduction, methods, results, discussion)

Modern Language Journals focus on debates and research regarding second and foreign language instruction and learning, whereas Communication Monographs concentrate on human communication studies. Therefore, noun use varies extensively across these journals since they have varying agendas for research. In the Applied Linguistics journals, each word does not necessarily appear as the most common, with most appearing in the middle frequency range. However, ‘study’, ‘participants’, and ‘research’ were the least occurring words. This journal addresses the connections between academic discourse, theory, and research methods in linguistics and related disciplines. In an interesting twist, certain words simply do not appear in certain journals. To be precise, ‘learners’ does not appear at all in Communication Monographs. Probably due to the fact that the journal concentrates more on human communication theories and less on second language learning. Conversely, ‘learners’ is plentiful in Modern Language Journals, since they publish material on pedagogy and second language acquisition. In the same vein, the term ‘English’ is less frequent in Communication Monographs but is used often in the other two journals. This suggests that discussions on English language learning are more relevant to Modern Language and Applied Linguistics journals, while Communication Monographs prioritize broader communicative phenomena rather than specific language instruction.

Overall, the three types of journals in question share and have differing purposes, which are apparent through the frequent usage of some nouns. It is evident that ‘language’ appears more in Modern Language Journals and Applied Linguistics journals but less in Communication Monographs. While ‘study’, ‘participants’ and ‘research’ were the most common words in this journal, they are less frequent in Applied Linguistics journals.

The findings of this study align with previous research. The words ‘participants’, ‘research’, and ‘data’ are part of the Academic Word List (AWL). Nevertheless, more than their status as AWL nouns, these nouns have distinct distributional patterns across journal types. The term ‘participants’ is used most frequently in methodology sections, thereby underlining its centrality to human-subject research. ‘Research’ is most prominent in discussion and literature review sections where theoretical and empirical contributions are synthesized. ‘Data’ is found primarily in methodology sections, in data collection and analysis contexts. These findings confirm that although AWL nouns constitute a core component of academic writing, their use is mediated by research method and discipline.

This finding is closely related to a comparable study examining AWL coverage in education research conducted by Mozaffari and Moini (2014). The evidence again supports Nilsson’s (2019) findings that scientific articles tend to feature more specialized vocabulary, including nouns. This corroborates the findings of Trinant and Yodkamlue (2019), who, although studying lexical collocations in nursing research articles, also discovered the nouns comprised 63.51% of the total word count.

2. Results of Research Question 2: What are the most frequently used noun collocations and their patterns (adjective-noun, verb-noun, noun-preposition) in journal articles?

This section studies the collocation patterns of the ten most frequently occurring nouns in each journal category. The analysis shows a combination of restricted and free collocations, indicating both structured and flexible usage patterns in academic discourse. The main findings are as follows:

Restricted collocations consist of specific adjective-noun, verb-noun, and preposition-noun combinations that often occur together. This reveals established patterns in specific contexts of academic discourse.

Free Collocations: Other nouns are more flexible, allowing them to adapt based on context and intended meaning. Their usage patterns change depending on the surrounding sentence structure.

2.1 The Patterns of the Noun ‘Language’

The noun ‘language’ is predominantly used in literature review sections and frequently paired with adjectives, verbs, and prepositions. From the examination, the most common pattern is ‘adjectives + language’, with ‘foreign’ being the most common adjective, followed by ‘second’ and ‘first’. This pattern is evident in various academic contexts, such as:

“...students learning a foreign language in year 12...”

“English as a Foreign Language (TOEFL)...”

“...to learn a foreign language, one does not hear...”

The structure ‘preposition + foreign language’ appears most frequently, as in ‘as a foreign language’. Similarly, ‘second’ commonly appears in the structure ‘as + second language’, often accompanied by prepositions such as ‘for’, ‘in’, and ‘of’. Although ‘first’ shares the same adjective type as ‘second’, the use of ‘as’ was absent in the corpus, ‘in’ was the most frequently used. Restricted collocations involve specific adjective choices constrained by context, such as ‘foreign’ in ‘foreign language’, which typically appears in fixed phrases related to language learning. Free collocations allow more variability, as seen with ‘second’ and ‘first’ in ‘second language’ and ‘first language’, where adjective choice is more flexible and context-dependent.

2.2 The Patterns of the Noun ‘Students’

Unlike ‘language’, the noun ‘students’ frequently appears in the results sections of articles, followed by the methods and literature review sections, reflecting the common involvement of student participants in research studies. The noun ‘students’ is most commonly found in the ‘verb + students’ collocation pattern. Frequently occurring verbs include ‘speaking’, ‘allow’, ‘help’, ‘ask’, and ‘include’. The word ‘speaking’ is the most common word. Although it has the form of a verb, in various contexts, ‘speaking’ functions as an adjective. For example, “English-speaking students” occurs in various discussion sections, from assessment methods to educational programs. While similar structures exist for other languages like American, Italian, Mandarin, and Spanish, they occur less frequently and represent restricted collocations. However, it is worth noting that verbs such as ‘allow’, ‘help’, ‘ask’, and ‘include’ are the ones that exhibit free collocations since they can be used with different nouns.

2.2.1 The Patterns of the Noun ‘Study’

These terms are primarily used in the ‘Discussion’ and ‘Methodology’ sections. In most articles, ‘study’ is found in the main topic section. ‘Study’ as a noun has many collocations in academic research. ‘adjectives + study’ is the most common form, and among the top three are ‘present’, ‘current’ and ‘first’, where present is the most frequent. This is very typical when referring to the phrase “preposition + present + study”, especially “in + present + study” which can be found at the start or end of sentences. ‘current’ and ‘present’ have similar meanings, leading researchers to use both adjectives interchangeably. Often, the ‘current study’ is found as a main or subtopic and it usually uses the prepositions ‘in’ and ‘of,’ just like in the case of the ‘present study’. Several articles examined independent research projects, which led to the frequent use of the phrase ‘first study’. Further analysis revealed that researchers use it to describe research or write comparisons. Certain collocations, such as ‘present study’, ‘current study’, and ‘first study’, demonstrate restricted collocations, indicating specific contexts in which these adjectives are commonly employed to describe ongoing or recent research projects.

2.2.2 The Patterns of the Noun ‘Participants’

The noun ‘participants’ is predominantly used in the methodology sections of academic articles. Unlike the previous three nouns, ‘participants’ most commonly occurs in the ‘participants + preposition’ collocation pattern, whereas the ‘adjective + participants’ pattern is the least common. When examining the usage of prepositions with the term ‘participants’, it becomes evident that ‘in’ is the most commonly employed preposition. The preposition ‘with’ ranks second in frequency, followed by ‘of’ in third place. ‘participants in’ is frequently coupled with the noun ‘study’, as in: “participants in the study had been asked to...”. Similarly, “participants in this study used discursive and interactional...” also reinforces this pattern.

Apart from that, some articles consider participants with various conditions, and therefore arrive at using ‘participants in’ alongside terms like ‘condition’, e.g., ‘three conditions’, ‘the active condition’, ‘the interactive condition’, ‘the passive condition’, among others, i.e., “participants in three conditions: active, interactive, and passive”, demonstrating its capacity to be used in academic contexts.

Moreover, ‘participants in’ is used with nouns for location or area, broadening its contextual use in scholarly work, e.g., “participants in classrooms, such as doing ‘being available’”. or “participants in the Malaysian nation.”, demonstrating its broader applicability outside of research. This shows the existence of both free and restricted collocations of the word ‘participants.’ Interestingly, the collocation ‘participants in + study’ is a restricted collocation, as it is employed consistently in academic writing to indicate the participation of participants in research studies. Free collocations occur in the different contexts where ‘participants in’ is employed. Although usually paired with ‘study’, it is paired with other nouns such as ‘condition’, ‘place’, or ‘area’, with plasticity, for multiple expressions in academic writing.

2.2.3 The Patterns of the Noun ‘Research’

The word ‘research’ is found in every article, particularly in the ‘Literature Review’ and ‘Discussion’ sections. Among adjectives associated with ‘research’, ‘future’ is the most frequently used, followed by ‘previous’ and ‘present’. There are two primary usage patterns: “adjective + research + verb” and “preposition + adjective + research”. The first one usually began sentences, with ‘future research’ being the most common, while the second one concluded them, with ‘previous research’ and ‘present research’ being more usual. Adjectives like ‘future’, ‘previous’, and ‘present’ show restricted collocations due to their consistent pairing with ‘research’. Nevertheless, the option to have some adjectives followed by a variety of prepositions like ‘because’, ‘for’, ‘from’, ‘in’, ‘of’, ‘on’ and ‘with’ is an indication that collocations can be free. This variability allows researchers to convey subtle meanings and emphasize specific contexts in academic writing.

2.2.4 The Patterns of the Noun ‘Learners’

The investigation found that ‘learners’ was more often found in the explanatory section than in the topic section. The section where such words are found is ‘Discussion’ and ‘Literature review’. They are found most often in ‘Discussion’. The most frequent pattern identified is ‘verb + learners’, as in the noun ‘students’. The three most frequent verbs include ‘help’, ‘present’, and ‘provide’, in this order. The verb ‘help’ is typically used in the pattern ‘to infinitive + learners’ (e.g., “to help learners conceptualize”), whereas ‘present’ and ‘provide’ use patterns such as ‘verb gerund + learners’ (e.g., “presenting learners with glosses”, “providing learners with resources”). The patterns mentioned are activities that are intended to assist the development of learners and are either ongoing activity or discrete events. Some pairings, such as ‘help + learners’, have limited collocational potential because they are very common. Others, such as “presenting learners with glosses”, are unrestricted, thereby bringing attention to the versatility of the verb ‘present’.

2.2.5 The Patterns of the Noun 'English'

The noun 'English' is most commonly found in the 'Result' section of articles, followed by 'Literature Review' and 'Methodology', and is least common in the 'Introduction'. It is sometimes absent in articles where the research content is not relevant to English. This resembles 'students' and 'learners'. The most widespread form is 'verb + English'. The verbs that appear most often are 'learn', 'use', and 'speak'. These verbs fit into three key patterns: 'gerund + English', 'to-infinitive + English', and 'base form + English'. 'Learn' and 'use' are primarily used in the gerund form (e.g., 'learning English', 'using English'), indicating ongoing activities related to English. 'Speak' is commonly used in the base form (e.g., 'speak English'), indicating communication in English. The gerund pattern with 'English' describes actions and preferences regarding the language's use, while the 'speak + English' pattern highlights aspects of communication in English. Restricted collocations are evident with 'learn' and 'use' in the gerund form, and 'speak' in the base form, indicating specific associations with activities and communication in English. However, other verbs also show more flexible usage with 'English' in various forms.

2.2.6 The Patterns of the Noun 'Role'

The word 'role' is infrequent in most articles. But in some articles, the focus is specifically on this subject, which results in higher frequency of the term. The most common section is 'Literature Review'. The noun 'role' is most frequently associated with the preposition 'of'. The second most frequent preposition is 'in', and 'as' is ranked third. The phrase 'role of' typically conveys function or purpose in a context and is found in the phrases 'role of creating', 'role of enhancing', and 'role of helping'. The preposition 'in' is found with many nouns such as 'role in translating', 'role in increasing social capital', and 'role in the process'. Conversely, 'role as' describes an individual's role, such as 'role as a student' and 'role as an interpreter'. The noun 'role' exhibits both restricted and free collocations in academic writing. 'Role of' and 'role in' are considered restricted collocations due to their highly predictable usage patterns and consistent syntactic structure. However, 'role as' is a free collocation, and more freedom of expression is offered by it, with the noun following 'role as' changing with context.

2.2.7 The Patterns of the Noun 'Data'

The noun 'data' is used in a similar way to 'participants'. This word is found most often in the 'Methodology' section and is found in topics such as Data analysis, Data Collection, Data and Participants, etc. However, in the format parts similar to 'learners' and 'English', the most 'verb + data' format is found. The noun 'data' frequently pairs with the verbs 'spoken' and 'written', while being derived from a verb, functions as an adjective in the pattern 'written and spoken data + preposition'. Therefore, it is not counted as a verb. Verbs like 'analyze' and 'transcribe' are commonly used with 'data' in academic contexts. 'Analyze + data' refers to examining information, while 'transcribe + data' involves converting spoken information into written form.

Examples from corpus data:

"we analyzed data from 15 U.S. presidential and..."

"the interviews in Spanish and English and transcribed the data with the help..."

"each of the chats collected data from four chat variables: channel,..."

These pairings show restricted collocations, such as 'analyze + data', 'transcribe + data', and 'collect + data', which follow specific patterns and are commonly used in academic and research contexts. These combinations are highly predictable and indicate standardized actions typically performed on data. In contrast, free collocations offer greater flexibility in usage, allowing for varied expressions in data analysis and handling.

2.2.8 The Patterns of the Noun 'Time'

The noun 'time' is rarely used in writing topics but is abundant in some articles relevant to time periods. It is most commonly found in the 'Results' section and least in the 'Introduction'. Two common patterns with 'time' are 'adjectives + time' and 'time + prepositions', with the latter being more frequent. The prepositions 'of', 'in', and 'on' are commonly used with 'time'. The most frequent prepositional collocation is 'time of', often paired with nouns like 'data collection' or 'testing' in a restricted manner. 'Time in' often appears with location-related nouns, such as English class, Guatemala, Taiwan, and the lab, also indicating restricted collocations. 'Time on' is less frequent and used with nouns describing activities, like a 7-point scale, listening activities, and social networking sites, showing free collocations. Overall, 'time of' and 'time in' suggest specific patterns of usage, while 'time on' allows more flexibility.

Summary

Noun patterns in the corpus reflect typical ways of use and dissemination across different parts of academic articles. Nouns such as ‘language’, ‘students’, ‘study’, ‘participants’, ‘research’, ‘learners’, ‘English’, ‘role’, ‘data’, and ‘time’ exhibit distinct patterns of occurrence. In analyzing the occurrence of the top ten nouns in each section of the articles, the study revealed divergent patterns in the utilization of both common and Academic Word List (AWL) nouns across different segments of the manuscripts. In the Literature Review sections, the most frequent general nouns were ‘language’ and ‘role’, while the only AWL noun encountered was ‘research’. This observation corresponds to Ang et al.’s (2017) findings regarding the prevalence of common nouns in the Literature Review sections. Conversely, in the Methodology sections, both AWL nouns, namely ‘participants’ and ‘data’, were consistently employed, with no occurrence of general nouns. Additionally, the Results sections employed ordinary nouns such as ‘students’, ‘English’, and ‘time’, which were not found in other sections that have more frequent usage of academic terminologies. In the Discussion sections, words such as ‘study’, and ‘learners’ showed up pointing to a focus on research data issues. These findings help us compare and get the gist of articles in different areas and understand how academic writing is structured overall.

Discussion

Analysis of adjective-noun, verb-noun, and noun-preposition collocations provides insights into language proficiency across diverse settings. The examination of collocational patterns in academic discourse reveals complex relationships between restricted and free collocations involving the ten most frequent nouns: ‘language’, ‘students’, ‘study’, ‘participants’, ‘research’, ‘learners’, ‘English’, ‘role’, ‘data’, and ‘time’ nouns.

This finding aligns with Howarth’s (1998) emphasis on how restricted collocations contribute to communicative precision and maintain composite units. Restricted collocations, like ‘foreign language’, illustrate the close relationship between specific adjectives and given nouns, forming fixed phrases that play a crucial role in giving exact, contextually appropriate information in academic text. These combinations, for example, “English as a foreign language”, foster comprehension by being able to place meaning before form.

Independent collocations, on the contrary, create a room for freedom of expression. This is clearly seen when we look at the example of a noun such as ‘data’ being collocated with words such as ‘analyze’ and ‘transcribe’. These word pairs enable writers to tailor their expressions to fit specific academic contexts. Overall, the interaction involves fixed patterns and those that are not, and it is a way of making writing more understandable. This dual strategy goes hand in hand with Howarth’s stance that linguistic conventionalism is key to successful communication by explaining that scholarly materials should always be precise and open to diverse interpretations.

Comparing the results of collocation frequency to those of Dukali (2018), Ghaniabadi et al. (2015), and Takač and Lukač (2013), it is evident that there are similarities as well as differences between learner groups. Takač and Lukač (2013) study of adjective-noun collocations in the Croatian Corpus of English Learner Essays (CELE) reflects the same trend as the British National Corpus (BNC) and the Library of English Language Learners (ICLE). In studies, people applied words like ‘research’ and ‘study’ in the same way. The findings give us an idea of how both learners and native speakers tend to pair a number of words while writing or speaking English. Ghaniabadi et al. (2015) found Iranian EFL learners frequently use adjective and abstract noun collocations, reflecting their proficiency. It is consistent with data which show ‘language’ having significant frequencies. On the other hand, ‘role’ is less frequent even though it is an abstract common noun.

Previous research has identified challenges for EFL learners to acquire these patterns as non-native speakers are anticipated to encounter trouble with verb-noun and adjective-noun collocations. Takač and Lukač (2013) examined adjective-noun collocations and established that EFL learners form native speaker-like patterns yet still struggle within an academic context. Ghaniabadi et al. (2015) reported that Iranian EFL learners make common use of adjective and abstract noun collocations, whereas Dukali (2018) reported difficulty in verb-noun and adjective-noun combinations by Libyan students.

The issues detected align with results seen in previous research, most notably by Harta et al. (2021), who noted widespread lexical collocation errors among learners, especially within verb-noun and adjective-noun combinations. The study argued that such errors often occur because of a lack of collocational competence and the interference of the learners’ native language. In the same vein, Boonraksa and Naisena (2021) highlighted the place of instructional approaches in enhancing collocation use, calling for focused interventions to advance EFL learners’

academic writing. On the basis of these results, explicit instruction of collocations, alongside systematic learning approaches, could be extremely significant in fighting against these issues.

This research confirms the importance of learning collocations as the key to academic writing proficiency. The research findings agree with past research into English collocation patterns for academic writing, particularly those focusing on frequent conjunctions of nouns and adjectives and verbs. Furthermore, the study confirms the importance of collocations in shaping academic discourse and consequently informing the design of specialist lexis and organized word sets as lying at the center of successful academic discourse. These results provide a sound foundation for the development of pedagogical strategies designed to enhance students' academic writing ability.

For EFL learners, understanding collocation patterns is significant in developing writing accuracy and fluency. Having knowledge of restricted collocations enables learners to generate more accurate academic writing, while exposure to free collocations enables them to generate more flexible and contextually relevant sentences. The instructor can use these results to inform language teaching by creating in-class activities that drill common academic collocations.

Given the findings on collocation patterns and their role in academic writing, the inclusion of systematic learning approaches in computer programs could help EFL learners internalize such structures more effectively. In addition, learning apps and educational software can incorporate these patterns into vocabulary practice exercises so that students may learn them through interactive methods.

Furthermore, previous research (e.g., Ghaniabadi et al., 2015; Takač and Lukač, 2013) shows that explicit instruction in collocations, especially verb-noun and adjective-noun collocations, can greatly contribute to writing fluency. Pedagogical practices in the future need to focus more on developing collocational patterns systematically through contextual examples and authentic academic texts.

Conclusions and Recommendations

1. Conclusions

This study provides a comprehensive analysis of noun frequency and usage across different journal types, revealing the prominence of words such as 'language', 'research', and 'study' in academic writing. Collocations are equally crucial in academic writing since restricted collocations follow consistent and predictable structures, e.g., 'foreign language' and 'analyze data'. Free collocations, on the other hand, allow greater freedom, e.g., in 'students of (different backgrounds)' and 'organize data'. The results indicate that restricted collocations leave space for the clarity and accuracy of academic vocabulary and allow effective transmission of ideas, while free collocations allow for contextual flexibility. The balance between the two kinds of collocations serves the systematic and flexible character of academic writing and highlights the function lexical frames have to play in academic writing. These nouns are unevenly distributed across sections, with literature reviews often engaging with 'language' and 'role', methodology sections concentrating on 'participants' and 'data', and results sections incorporating more general nouns like 'students' and 'English'. Revealing these frequency patterns enhances academic writing by describing how the deployment of nouns varies by research article section. These findings are consistent with current research that supports academic writing as being noun-dense, and specialist vocabulary plays a significant role in structuring scholarly writing.

2. Recommendations

2.1 Policy Recommendations

Educational institutions should support the integration of corpus-based tools and collocation analysis in EFL syllabi. Course material and designs must integrate frequently occurring academic noun collocations for the further improvement of students' proficiency in academic writing. For example, students could use corpus analysis software such as AntConc to identify common noun collocations in academic texts. Additionally, corpus-informed activities such as matching exercises, gap-filling tasks, and guided writing practices could be designed based on actual collocational patterns found in journal articles.

2.2 Practical Recommendations

Language instructors are encouraged to incorporate activities using corpus tools, such as AntConc, in order to help learners discover and analyze academic collocations directly from authentic texts. For example, students could be assigned to search for frequent adjective-noun collocations within selected journal articles and categorize them as restricted or free based on their usage patterns. Gap-filling exercises based on real collocational data could also be designed to support the contextualized use of collocations. Moreover, instructors should provide learners with basic training on how to use corpus tools to conduct simple searches, interpret concordance lines, and recognize

patterns of academic collocation usage. Emphasizing both recognition and production tasks can effectively enhance learners' writing fluency and accuracy.

2.3 Recommendations for Future Research

While the study is helpful, there are some limitations that must be noted. The data was obtained from specific journals, which could incline the results toward language patterns used in those publications. Also, by targeting specific noun pairs, other notable word pairings used in academic writing might have been omitted.

Earlier research has shown AWL term frequency to vary between fields. Mozaffari and Moini (2014) cited a lower than expected frequency of AWL in educational research (4.94%), while Vongpumivitch et al. (2009) reported a higher frequency (11.17%) in applied linguistics. Similarly et al. (2013) cited a 11.96% frequency of AWL terms in research articles. Such contrasts suggest the influence of convention in disciplinary discourse on noun usage and collocation patterns, indicating more work across a variety of fields can provide further insight.

Future studies would be recommended to study the utilization of collocation in other domains of study using other approaches of research. Qualitative approach was used in research, which delivers rich data though it is not objective in its nature. The future studies can study journals based on other fields of study such that the models of collocation can be made more transferable across the arenas of academia. In addition, the use of a mixed-methods study that incorporates qualitative and quantitative analysis may offer more accurate data on collocation patterns, thus a better insight into how they are applied in scholarly writing. This would help to develop concentrated vocabulary materials and instruction resources that enhance EFL learners' writing ability at the academic level.

Expansion of this research to several areas of study could further outline how collocations build scholarly style, augmenting the information available on norms for academic writing. Future studies must also examine variance in AWL coverage across different fields, given that the outcomes of Khani and Tazik (2013) and Mozaffari and Moini (2014) find that discipline convention influences the selection of collocations. Greater distinction of disciplines can potentially be immensely helpful.

References

- Ahmad, A., & Riaz, M. (2024). A study of analyzing the impact of L2 on learning the collocations of English among university students in Punjab, Pakistan. *Journal of Regional Studies Review*, 3(1), 51-58. <https://doi.org/10.62843/jrsr/2024.3a025>
- Alotaibi, A. (2014). The comprehension of English Lexical Collocates by Kuwaiti EFL Learners. *International Journal of English Language and Linguistics Research*, 2(3), 1-12. <https://www.eajournals.org/wp-content/uploads/The-comprehension-of-English-lexical-collocations-by-Kuwaiti-EFL-learners.pdf>
- Ang, L. H., Tan, K. H., & He, M. (2017). A corpus-based collocational analysis of noun premodification types in academic writing. *3L The Southeast Asian Journal of English Language Studies*, 23(1), 115-135. <https://doi.org/10.17576/3L-2017-2301-09>
- Anthony, L. (2005). AntConc: Design and development of a freeware corpus analysis toolkit for the technical writing classroom. In *2005 IEEE International Professional Communication Conference (IPCC)* (pp. 729-737). IEEE Eplore. <https://doi.org/10.1109/IPCC.2005.1494244>
- Anthony, L. (2022). *TagAnt (Version 2.0.5)* [Computer Software]. Tokyo, Japan, Waseda University. Retrieved from <https://www.laurenceanthony.net/software>
- Baker, P. (2010). *Sociolinguistics and corpus linguistics*. Edinburgh University Press. <http://site.ebrary.com/id/10391765>
- Bazzaz, F. E. (2013). Verb-Noun Collocation Proficiency and Academic Years. *International Journal of Applied Linguistics & English Literature*, 3(1), 152-162. <https://doi.org/10.7575/aiac.ijalel.v3n.1p.152>
- Bazzaz, F. E., & Samad, A. (2011). The use of Verb noun collocations in writing stories among Iranian EFL Learners. *English Language Teaching*, 4(3). <https://doi.org/10.5539/elt.v4n3p158>
- Bennett, G. R. (2010). *Using corpora in the language learning classroom: corpus linguistics for teachers*. The University of Michigan Press. <https://doi.org/10.3998/mpub.371534>
- Biber, D., Conrad, S., & Reppen, R. (1998). *Corpus linguistics : investigating language structure and use*. Cambridge University Press.
- Boonphoie, P., & Bhoomkhokrak, P. (2024). Integrating CLIL and Project-Based Learning to enhance sixth graders' English reading achievement. *Academic Journal of Management Technology*, 5(1), 16-28. <https://doi.org/10.14456/ajmt.2024.2>

- Boonraksa, T., & Naisena, S. (2021). A Study on English Collocation Errors of Thai EFL Students. *English Language Teaching*, 15(1), 164-177. <https://doi.org/10.5539/elt.v15n1p164>
- Brett, D., Loranc-Paszylk, B., & Pinna, A. (2021). A corpus-driven analysis of adjective/noun collocations in travel journalism in English, Italian and Polish. *MonTI. Monografias de Traducción e Interpretación*, (13), 114-147. <https://doi.org/10.6035/MonTI.2021.13.04>
- Bueraheng, N., & Laohawiriyanon, C. (2014). Does learners' degree of exposure to English language influence their collocational knowledge? introduction. *International Journal of English and Literature (IJEL)*, 4(3), 1-10.
- Chen, Q., & Ge, G. (2007). A corpus-based lexical study on frequency and distribution of Coxhead's AWL word families in medical research articles (RAs). *English for Specific Purposes*, 26(4), 502-514. <https://doi.org/10.1016/j.esp.2007.04.003>
- Cowie, A. P. (1998). *Phraseology: theory, analysis, and applications*. Oxford Academic. <https://books.google.co.th/books?id=Df-iQpNMLcgC>
- Coxhead, A. (2000). A new academic word list. *TESOL Quarterly*, 34(2), 213-238.
- Crystal, D. (2003). *English as a global language* (2nd ed.). Cambridge University Press. <https://doi.org/10.1017/CBO9780511486999>
- Dash, N. S. (2008). *Corpus linguistics: an introduction*. Pearson Longman. <https://books.google.co.th/books?id=ikOZWjkkxzEC>
- Dukali, A. A. (2018). An error analysis of the use of lexical collocations in the academic writing of libyan EFL University students. *Journal of Second Language Teaching and Research*, 6(2), 55-91.
- Ghaniabadi, S., Marjane, E., & Zareian, G. (2015). The use of adjective+noun collocations by Iranian EFL learners based on noun abstractness. *International Journal of Linguistics*, 7(5), 86. <https://doi.org/10.5296/ijl.v7i5.8143>
- Harta, I., Bay, I. W., & Ali, S. (2021). An analysis of lexical collocation errors in students' writing. *TRANS-KATA: Journal of Language, Literature, Culture and Education*, 2(1), 15-25. <https://doi.org/10.54923/transkata.v2i1.18>
- Hill, J. (2000). Revising priorities: from grammatical failure to collocational success. In M. Lewis (Ed.), *Teaching collocation: Further developments in the lexical approach* (pp. 47-67). Oxford University Press.
- Holtz, M. (2007). A corpus-based analysis of verb/noun collocations in interdisciplinary registers. In Davies, M., Rayson, P., Hunston, S., & Danielsson, P. (Eds.), *Corpus Linguistics Conference 2007* (pp.1-12). UCREL. http://ucrel.lancs.ac.uk/publications/CL2007/paper/14_paper.pdf
- Howarth, P. A. (1996). *Phraseology in English academic writing: some implications for language learning and dictionary making*. Walter de Gruyter GmbH. <https://books.google.co.th/books?id=uFq6AAAAIAAJ>
- Howarth, P. A. (1998). Phraseology and second language proficiency. *Applied Linguistics*, 19(1), 24-44. <https://doi.org/10.1093/applin/19.1.24>
- Khani, R., & Tazik, K. (2013). Towards the development of an academic word list for applied linguistics research articles. *RELC Journal*, 44(2), 209-232. <https://doi.org/10.1177/0033688213488432>
- Kirub, A. (2014). *Essentials of scientific writing*. Addis Ababa: Ethiopian Institute of Agricultural Research (EIAR).
- Lewis, M. (2000). *Teaching collocation : further developments in the lexical approach*. Language Teaching Publications.
- Martínez, I. A., Beck, S. C., & Panza, C. B. (2009). Academic vocabulary in agriculture research articles: A corpus-based study. *English for Specific Purposes*, 28(3), 183-198. <https://doi.org/10.1016/j.esp.2009.04.003>
- McCarthy, M., O'Dell, F., & Walsh, S. (2010). *English collocations in use: advanced*. Cambridge University.
- McCarthy, M., O'Dell, F., & Walsh, S. (2017). *English Collocations in Use. Intermediate* (2nd ed.). Klett Sprachen GmbH.
- McEnery, T., & Wilson, A. (2001). *Corpus linguistics : an introduction* (2nd ed.). Edinburgh University Press.
- Meara, P. (1992). *EFL vocabulary tests*. Centre for Applied Language Studies, University of Wales, Swansea.
- Mongkolchai, A. (2008). A study of University students' ability in using English collocations. [Master' s thesis, Srinakharinwirot University]. Integrated Thesis & Research Management System. [http://thesis.swu.ac.th/swuthesis/Eng\(M.A.\)/Angkana_M.pdf](http://thesis.swu.ac.th/swuthesis/Eng(M.A.)/Angkana_M.pdf)
- Mozaffari, A., & Moini, R. (2014). Academic words in education research articles: a corpus study. *Procedia - Social and Behavioral Sciences*, 98, 1290-1296. <https://doi.org/https://doi.org/10.1016/j.sbspro.2014.03.545>

- Nampanya, R., & Wangmo, N. (2020). The awareness of phrasal verb collocations of third year (EIC) major students at Rajamangala University of Technology Isan, Surin Campus. *Academic Journal of Management Technology*, 1(1), 120-128. <https://so03.tci-thaijo.org/index.php/jomt/article/view/246613>
- Nilsson, F. (2019). *A comparative analysis of word use in popular science and research articles in the natural sciences : A corpus linguistic investigation* [Bachelor's thesis, Mälardalen University]. Mälardalen University Library. <http://mdh.diva-portal.org/smash/get/diva2:1330702/FULLTEXT01.pdf>
- Ordem, E., & Bada, E. (2016). *Lexical collocations (verb + noun) across written academic genres in English. European Journal of Education Studies*, 1(3), 20-37. <https://doi.org/10.5281/zenodo.51567>
- Peacock, M. (2012). High-frequency collocations of nouns in research articles across eight disciplines. *Iberica*, 23(5), 29-46.
- Phiwma, N. (2023). Effects of blended Game-based Learning in enhancing learning achievements in vocabulary, grammar, and idioms for formal presentations in “English for Presentations” course of computer science students at Suan Dusit University. *Academic Journal of Management Technology*, 4(2), 84-96. <https://doi.org/10.14456/ajmt.2023.6>
- Putra, D., & Suhardijanto, T. (2019). The use of verb + noun collocations by English learners of Indonesian. In *Proceeding of the 4th International Seminar on Linguistics (ISOL-4)* (pp. 25–33). De Gruyter. https://www.researchgate.net/publication/338278740_The_Use_of_Verb_Noun_Collocations_by_English_Learners_of_Indonesian
- Ridha, N. A., & Riyahi, A. A. (2011). Lexical collocational errors in the writings of Iraqi EFL learners. *Journal of the College of Arts*, 58, 24-51.
- Sanguannam, S. (2017). A study on “Delexical Verb+Noun” collocation errors of Thai EFL intermediate and advanced learners. *A Journal of Liberal Arts*, 17(2), 59-84.
- Schmitt, N. (2000). *Vocabulary in language teaching* (12th ed.). Cambridge University Press. <https://books.google.co.th/books?id=0HNly9nxBXgC>
- SCImago. (n.d.). *SJR — SCImago Journal & Country Rank*. <http://www.scimagojr.com>
- Shabani, M. B., & Tazik, K. (2014). Coxhead’s AWL across ESP and Asian EFL Journal Research Articles (RAs): a corpus-based lexical study. *Procedia - Social and Behavioral Sciences*, 98, 1722-1728. <https://doi.org/https://doi.org/10.1016/j.sbspro.2014.03.599>
- Szudarski, P. (2018). *Corpus linguistics for vocabulary: a guide for research*. Routledge. <https://books.google.co.th/books?id=B2dBswEACAAJ>
- Takač, V.P. & Lukač, M. (2013). How word choice matters: An analysis of adjective-noun collocations in a corpus of learner essays. *Jezikoslovlje*, 14(2-3), 385-402.
- Trinant, K., & Yodkamlue, B. (2019). Lexical Collocations in a Sample Corpus of Nursing Research Articles (SCNRA). *Suranaree journal of social science*, 13(1), 45-72.
- Tungyai, S., & Rakpa, S. (2021). Collocation Competence : A Case Study of Undergraduate Students. *Journal of MCU Humanities Review*, 7(1), 331–346. <https://so03.tci-thaijo.org/index.php/human/article/view/252738>
- Uçar, S., & Yükselir, C. (2015). The effect of corpus-based activities on verb-noun collocations in EFL classes. *Turkish Online Journal of Educational Technology*, 14(2), 195-205.
- Viera, R. T. (2016). The importance of vocabulary knowledge in the production of written texts: a case study on EFL language learners. *Revista Tecnológica ESPOL – RTE*, 30(3), 89-105.
- Vongpumivitch, V., Huang, J., & Chang, Y. (2009). Frequency analysis of the words in the Academic Word List (AWL) and non-AWL content words in applied linguistics research papers. *English for Specific Purposes*, 28(1), 33-41. <https://doi.org/https://doi.org/10.1016/j.esp.2008.08.003>
- West, M. (1953). *A general service list of English words: with semantic frequencies and a supplementary word-list for the writing of popular science and technology*. Longman. <https://books.google.co.th/books?id=WcYMAQAAIAAJ>
- Yakhontova, T. V. (2003). *English academic writing for students and researchers* (2nd ed.). Lviv: PAIS.
- Yumanee, C., & Phoocharoensil, S. (2013). Analysis of collocational errors of Thai EFL students. *LEARN Journal: Language Education and Acquisition Research Network*, 6(1), 88–98. <https://so04.tci-thaijo.org/index.php/LEARN/article/view/10272>