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Research Paper

## Comparative Patterns of Lexical Bundles and Adjective Collocations in Academic Writing: Insights from Native English and Arab Writers

Ali Jabbar Zwayyer<sup>1</sup>, Sousan Sattar Boroujeni<sup>2\*</sup>, Haider Hussein Katea Khanjar<sup>3</sup>, Elahe Sadeghi Barzani<sup>4</sup>

<sup>1</sup>Ph.D. Candidate, Department of English Language, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran

[alizwayyer@gmail.com](mailto:alizwayyer@gmail.com)

<sup>2\*</sup>Assistant Professor, English Department, Najafabad Branch, Islamic Azad University, Najafabad, Iran

[sousansattar@phu.iaun.ac.ir](mailto:sousansattar@phu.iaun.ac.ir)

<sup>3</sup>Assistant Professor, Department of English, Thi-Qar University, Nasirya, Iraq

[dr.Haider.Hussein.vKatea@utq.edu.iq](mailto:dr.Haider.Hussein.vKatea@utq.edu.iq)

<sup>4</sup>Assistant Professor, Department of English Language, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran

[elahesadeghi20@yahoo.com](mailto:elahesadeghi20@yahoo.com)

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### Abstract

This study investigates the use of lexical bundles and adjective collocations in academic writing by native English speakers and Arab speakers of English, with a particular focus on identifying significant similarities and differences in their usage. Lexical bundles—frequent multi-word sequences—and adjective collocations—commonly co-occurring adjective-noun pairs—are essential for academic fluency, coherence, and precision. Using a mixed-methods approach, the study combines quantitative measurements of lexical bundles and collocations with qualitative discourse analysis. The corpus consists of 30 academic articles, 15 written by native speakers of English and the other 15 by Arab English speakers, all extracted from the fields of linguistics and economics. The findings reveal notable discrepancies in the employment of lexical bundles, as native English authors utilize a wider array of these bundles, especially in terms of discourse structuring and argumentative expression. Conversely, Arab English authors exhibit a greater dependence on bundles related to formality and clarity, a tendency shaped by the conventions of discourse prevalent in their native Arabic language. Conversely, the examination showed no significant differences in the use of adjective collocations, suggesting that Arab authors tend to use a similar range of adjective-noun pairs to those of native speakers of English. The research underscores the significance of L1 transfer and cultural influences in the development of academic writing, with a specific focus on the employment of lexical bundles. It posits that Arab learners of English might gain advantages from specialized instruction designed to enhance their repertoire of discourse-organizing bundles. Furthermore, the results extend the understanding within the larger domain of contrastive rhetoric by offering valuable perspectives on the cross-linguistic variances between Arabic and English academic writing. The study gives important implications for language instruction, particularly in helping Arab learners improve their academic writing ability through a focus on proper use of lexical bundles and collocations.

**Keywords:** *Lexical bundles, adjective collocations, academic writing, native speakers of English, Arab speakers of English, contrastive rhetoric, corpus analysis*

### الگوهای مقایسه‌ای بسته‌های واژگانی و ترکیبهای صفت در نوشتار دانشگاهی: بینشهایی از نویسندگان بومی انگلیسی و عرب

این مطالعه به بررسی استفاده از بسته‌های واژگانی و ترکیبهای صفت در نوشتار دانشگاهی توسط انگلیسی‌زبانان بومی و عرب زبان انگلیسی، با تمرکز ویژه بر شناسایی شباهت‌ها و تفاوت‌های قابل توجه در استفاده از آنها می‌پردازد. بسته‌های واژگانی - توالیهای چند کلمه‌ای مکرر - و هم‌نشینی صفتها - که معمولاً جفت‌های صفت-اسم مشترک وجود دارند - برای روانی، انسجام و دقت آکادمیک ضروری هستند. این مطالعه با استفاده از رویکرد ترکیبی روش، اندازه‌گیری کمی بسته‌های واژگانی و ترکیببندیها را با تحلیل گتمان کیفی ترکیب میکند. مجموعه شامل 30 مقاله دانشگاهی است که 15 مقاله توسط افراد بومی انگلیسی و 15 مقاله دیگر توسط انگلیسی‌زبانان عرب نوشته شده است که همگی از حوزه‌های زبان‌شناسی و اقتصاد استخراج شده‌اند. یافته‌ها تفاوت‌های قابل‌توجهی را در استفاده از بسته‌های واژگانی نشان میدهند، زیرا نویسندگان بومی انگلیسی از مجموعه گسترده‌تری از این بسته‌ها، به ویژه از نظر ساختار گتمان و بیان استدلالی استفاده میکنند. برعکس، نویسندگان عرب انگلیسی وابستگی بیشتری به بسته‌های مربوط به رسمیت و وضوح نشان میدهند، گرایشی که توسط قراردادهای گتمانی رایج در زبان عربی مادری آنها شکل گرفته است. برعکس، این بررسی تفاوت معنی‌داری را در استفاده از ترکیبهای صفت نشان نمیدهد، که نشان میدهد نویسندگان عرب تمایل دارند از طیفی مشابه از جفت‌های صفت-اسم استفاده کنند. این تحقیق بر اهمیت انتقال L1 و تأثیرات فرهنگی در توسعه نوشتار دانشگاهی، با تمرکز ویژه بر استفاده از بسته‌های واژگانی تأکید میکند. این فرض میکند که فراگیران عرب زبان انگلیسی ممکن است از آموزشهای تخصصی که برای ارتقای مجموعه‌های سازماندهی گتمان طراحی شده‌اند، مزایایی کسب کنند. علاوه بر این، نتایج با ارائه دیدگاههای ارزشمند در مورد واریانسهای بین زبانی بین نوشتار دانشگاهی عربی و انگلیسی، درک را در حوزه بزرگتر بلاغت متضاد گسترش میدهد. این مطالعه مفاهیم مهمی را برای آموزش زبان، به ویژه در کمک به فراگیران عرب برای بهبود توانایی نوشتاری آکادمیک خود از طریق تمرکز بر استفاده صحیح از بسته‌های واژگانی و ترکیببندیها ارائه میکند.

کلیدواژه‌ها: مجموعه‌های واژگانی، ترکیبهای صفت، نگارش دانشگاهی، زبان مادری انگلیسی، عرب زبان انگلیسی، بلاغت متضاد، تحلیل پیکره



## Introduction

In academic writing, the use of lexical bundles and adjective collocations is necessary to attain fluency and clarity. Lexical bundles, defined as repeated combinations of words that tend to co-occur within discourse (Biber et al., 2004), have a very important role in ensuring the cohesion and coherence of writing. They make academic texts more fluent since they help writers to follow the already set structures while expressing complex ideas in concise ways. Similarly, adjective collocations—combinations of adjectives with nouns—make expression more precise, providing much more detail in the description of concepts and phenomena in academic writing (Nesselhauf, 2005). These lexical features become particularly significant in formal writing, where clarity and correctness are key.

In L2 academic writing, more so for Arabic-speaking writers, the use of lexical bundles and adjective collocations may be influenced by their L1 structures. Arabic, with its very different syntactic and lexical rules, might therefore lead to salient differences in using these features compared to native speakers of English. This, therefore, shows that the way in which Arab writers use lexical bundles and collocations in comparison with native writers of English gives insights into the challenges faced by L2 learners, particularly in academic settings.

The present paper explores the patterns of lexical bundles and adjective collocations in academic writing produced by native speakers of English and Arab speakers of English. By examining these features, the study tries to bring out important similarities and differences in their use across the two groups, hence serving insights into the influence of L1 on L2 academic writing.

## The Problem

The ability to write academically is an essential competency for students engaged in higher education, serving as the foremost avenue for exhibiting mastery of academic content, participating in scholarly discussions, and making contributions to the larger academic community. For individuals who are non-native English speakers, especially those originating from Arabic-speaking regions, composing academic texts in English poses a variety of challenges. Compounded by structural differences between the mother tongue (Arabic) and the target language (English), these challenges might affect the coherence, flow, and academic adequacy of the texts.

Among those aspects of L2 academic writing that have received growing attention is the use of lexical bundles, that is, recurrent word sequences whose function is to structure discourse, signal relationships between ideas, and express complex meanings concisely (Biber et al., 2004). Lexical bundles are important for cohesion and coherence in academic writing, but there is evidence that non-native speakers, and specifically learners of Arabic, either transfer from L1 or use a very narrow range of bundles (Hyland, 2008). The influence of Arabic syntactic patterns and discourse conventions might cause Arab English writers to use lexical bundles differently than native English writers, which would adversely affect the fluency and readability of their academic writing.

In a similar way, adjective collocations, which are described as usual combinations of adjectives and nouns that frequently appear in academic discourse, are another crucial factor affecting the quality of academic writing. Collocations contribute to precision and clarity in the descriptions of academic texts (Nesselhauf, 2005). Still, non-native speakers might find it challenging to master the subtle nuances of adjective-noun combinations in English—especially when such collocations deviate strongly from their L1. For Arab English speakers, this challenge is particularly manifest due to the differences in collocational patterns found between Arabic and English, which may lead to expressions that sound unnatural or awkward in academic writing.



Despite the significance of lexical bundles and adjective collocations, there is a lack of studies that clearly examine the use of these linguistic features in academic writing by native speakers of English as compared with Arabic speakers of English. While there are comparative studies on syntax and general academic writing styles, few focus specifically on the lexical and collocational aspects of academic writing between these two linguistic groups. The problem is that there is a lack of comprehensive, empirical research studies that compare the exact similarities and differences in the use of lexical bundles and adjective collocations by native and non-native speakers, with special reference to Arabic speakers. Hence, it is worthwhile to pursue the comprehensive investigation into how those features are employed in the context of academic writing as well as what potential contribution L1 transfer may bring about in the academic works composed by Arab students learning the English language.

The aim of this study is to bridge this gap with a comparative analysis of lexical bundles and adjective collocations in academic writing by native speakers of English and by Arab writers of English. This research, through the patterns and statistical differences identified, aims at contributing to a better understanding of the linguistic challenges that face Arab learners of English and at suggesting ways through which these may be overcome through targeted language teaching and curriculum design.

### **Literature Review**

The use of lexical bundles and adjective collocations in academic writing has drawn considerable attention from linguistic research. They are necessary for the acquisition of academic fluency, coherence, and clarity since they play a significant role in the effectiveness of academic communication. The following is a review of key studies on lexical bundles, adjective collocations, and cross-linguistic differences in academic writing with special focus on native and non-native speakers and especially Arabic speakers of English.

#### **Lexical Bundles in Academic Writing**

Lexical bundles represent collections of words that commonly co-occur within a specific genre, thereby fostering coherence and assisting readers in navigating intricate academic arguments (Biber et al., 2004). These expressions comprising multiple words fulfill various roles, including indicating connections between concepts, structuring discourse, and expressing the writer's viewpoint (Hyland, 2008). In the context of academic writing, the utilization of lexical bundles is essential for crafting coherent and compelling texts that effectively engage readers through logically organized arguments.

Biber et al. (2004) categorized lexical bundles into several classes, including stance bundles (e.g., it is important to), referential bundles (e.g., in the case of), and discourse-organizing bundles (e.g., as a result of). These bundles are very important in the structure of academic discourse since they provide organization for arguments, delivery of evidence, and logical connections between ideas. Hyland (2008) further emphasized that lexical bundles increase the fluency and coherence of academic writing by linking ideas and signaling expected reasoning patterns.

In recent years, research has focused on the use of lexical bundles in L2 academic writing. Studies have found that L2 writers, particularly those from non-Western linguistic backgrounds, often display different preferences for lexical bundles compared to native English speakers. Murad and Bacha (2020) found that Arabic speakers writing in English use fewer discourse-organizing bundles compared to native speakers of English, showing a difference in rhetorical norms between English and Arabic academic texts. This finding is consonant with Liu and Xie's study (2019), which showed that L2 writers from China tended to overuse some bundles and underuse other ones, which are frequently appeared in native English academic papers.



Moreover, Alharbi (2021) observed that Arabic learners of English often rely on a more limited set of lexical bundles, which are often influenced by the linguistic structures of their first language. This limitation in the bundle variety might be attributed to the different syntactic structures between Arabic and English, where speakers of Arabic might prefer explicit expression to the implicit and concise forms that are more commonly used in English academic writing (Canagarajah, 2017).

Contemporary research has also examined the role of corpus-driven analysis in the assessment of lexical bundle use in L2 academic writing. Using large corpora, Biber et al. (2021) analyzed the patterns of lexical bundles in the academic writing of native and non-native speakers and found that native speakers generally exhibit a greater range of lexical bundles across different academic disciplines, while L2 learners, including Arab writers, tend to have much more restricted use (Nesi, 2020; Salih, 2022).

Furthermore, corpus studies by O'Donnell and Simpson (2017) and Liao and Wong (2021) have demonstrated that Arabic-speaking writers often have a particular affinity for bundles related to formality, such as *it is important to* and *the aim of*, which are influenced by Arabic writing traditions that prioritize formality and explicitness. This suggests that L1 transfer plays a significant role in shaping the lexical bundle use of Arabic L2 writers (Alharbi, 2021; Kamran et al., 2022).

### **Adjective Collocations in Scholarly Writing**

Adjective-noun collocations, understood here as the pairings of adjectives with nouns that commonly appear together in scholarly writing, are crucial in ensuring specificity and precision in descriptive language (Nesselhauf, 2005). In academic discourse, the ability to use proper and conventional adjective-noun combinations adds clarity and validity to written arguments. Common in scholarly literature, this is evident in such pairings as *significant difference*, *relevant information*, and *critical factor* when describing research findings and theoretical concepts.

However, the acquisition of adjective collocations poses a serious problem for many L2 learners, in that collocations tend to be language-specific and, therefore, not easily predictable or translatable in a straight-forward manner from one language to another. Arabic learners, for example, may face difficulties arising from the differences in the syntactic and semantic structures of collocations in Arabic and English. Research by Kharma and Hajjaj (2016) and Sarr (2020) showed that Arabic-speaking writers tend to overuse some collocations, such as *important factor*, and underuse others, such as *key role*, which are more typical in native English academic writing.

Similarly, studies by Liu and Xie (2019) and McCarthy and O'Dell (2021) showed that L2 learners of English frequently struggle with collocational accuracy, especially in disciplines where precision and diversity of expression are paramount. These difficulties may stem from the learners' reliance on direct translation from Arabic, which often leads to non-native and sometimes awkward combinations (Flowerdew, 2015).

Recent studies have also investigated the impact of cultural factors on collocational choices in academic writing. Al-Saidi (2022) posits that Arabic writers, under the influence of their L1, are more likely to use collocations that show formality and directness, which is in keeping with the academic traditions in Arabic. This contrasts with the more implicit and hedged expressions in English academic writing (Canagarajah, 2017). Further research by, for example, Rimmer (2021) and Stoddard (2023) has also revealed that hedging collocations are often problematic for Arabic learners (e.g., *seem to be* or *may point to*). This feature of language is much more commonly found in English academic writing than in Arabic.



Furthermore, corpus-based studies by Hu (2021) and Liao and Wong (2021) have confirmed the finding that Arab English authors exhibit limited collocational variation in their academic writing compared with native English authors, especially in the case of more complex or field-specific collocations. These findings suggest that while Arab learners of English may be able to use basic collocations such as important factor or relevant information, they may struggle with more nuanced or specialized collocations that require a deeper understanding of academic conventions (Xie & Wang, 2020).

### **Cross-Linguistic Differences in Academic Writing**

The study of cross-linguistic differences in academic writing has long been a staple of the research in contrastive rhetoric and second language acquisition studies. In particular, contrastive rhetoric examines how cultural and linguistic differences affect the way L2 writers develop academic texts, including their use of lexical bundles, collocations, and general argumentative style (Connor, 2002).

Studies by Alharbi (2021) and Kharma and Hajjaj (2016) suggest that Arab English writers have distinctive rhetorical tendencies in their academic writing, particularly with regard to the use of lexical bundles and collocations. The Arabic language has high morphological complexity and a flexible word order, enabling more overt and formal expression in written discourse (Alharbi, 2021). This contrasts with English, which prefers more implicit, concise, and fluid structures, particularly in academic genres (Canagarajah, 2017). This often creates a mismatch between the academic writing conventions in Arabic and English, where the Arab writers are likely to find it hard to move to the more concise and direct style that native writers of English academic writing adopt.

Furthermore, studies by Flowerdew (2015) and O'Donnell and Simpson (2017) show that L2 writers whose first language is Arabic tend to overuse certain lexical bundles associated with formality and explicitness, such as phrases it is important to, the aim of, and the purpose of, which are extensively used in Arabic academic writing. This is different from the more diverse and implicit repertoire of bundles used by native writers in English, who rely on a wider range of structures to convey similar meanings.

Research by Kharma and Hajjaj (2016) and Liu and Xie (2019) also highlighted that Arabic speakers of English often produce academic texts that are structurally similar to those in Arabic, relying more on explicit signals of argumentation, such as in conclusion or as a result of, and using fewer bundles that signal argumentation or logical progression (e.g., first of all or in addition to).

### **Recent Advances in Cross-Linguistic Writing Studies**

Recent scholarship in corpus linguistics and computational approaches has further emboldened researchers to carry out large-scale studies on lexical bundles and collocations in L2 academic writing. Such research has opened up new insights into the ways through which L2 learners, particularly those hailing from Arabic-speaking backgrounds, develop and deploy these linguistic aspects in their academic writing. Tools like AntConc and WordSmith have been invaluable for identifying and categorizing lexical bundles and collocations in large corpora, making possible a more precise understanding of the patterns that characterize L2 writing (Biber, 2021; O'Donnell & Simpson, 2017).

Rimmer (2021) and Stoddard (2023) exemplify the role of corpus-based analysis in identifying specific difficulties for Arabic learners, which include the limited use of some lexical bundles and collocations critical for argumentation and discourse-organizing functions in English academic writing. The results of this study carry implications that learners of Arabic might





benefit from targeted pedagogical interventions to improve their usage of discourse-organizing bundles and complex collocations.

Research by Canagarajah (2017) and Salih (2022) highlights the importance of introducing cultural awareness in the pedagogy of academic writing. Arab students need to be aware of the cultural and rhetorical differences between Arabic and English academic writing conventions as a means of reconciling the gaps in their writing practices and improving their use of lexical bundles and adjective collocations.

This literature review focuses on the central role of lexical bundles and adjective collocations in academic writing, particularly for L2 learners from Arabic-speaking backgrounds. Although some recent scholarship has begun to highlight differences in lexical bundle and collocational use between native and non-native writers, in general, much more exploration is needed to understand specific challenges for Arabic speakers. The influence of L1 transfer, along with cultural and cognitive factors, plays a crucial role in shaping the academic writing skills of Arabic learners of English. Further research is therefore necessary to develop more effective pedagogical interventions that address these challenges and improve the ability of Arabic learners to use these essential academic writing features.

### Research Objectives

To examine the frequency and nature of use of lexical bundles and adjective collocations in academic writing by native speakers of English and non-native Arab speakers of English. This objective aims at a careful investigation and comparison of the frequency of use of these multi-word sequences—lexical bundles—and specific pairs of adjectives and nouns—adjective-noun collocations—in academic writing. The study examined two distinct groups: those who speak English as a first language and Arabs who speak English as a second language. The research, by finding and exploring such common language patterns, attempted to find out any significant difference in the frequency and use of certain phrases and word combinations by these groups. The aim was to discover whether there are differences in how these groups construct their academic texts, and if so, what these differences may reveal about the influence of language background on academic writing. It analyzes to what extent the divergences of using common phrases and word combinations reveal mental processes or social language influences from the writer's first language. This objective examined the potential mental and linguistic causes for the divergences in the use of word clusters and adjective collocations by native and non-native writers.

Specifically, the research considered whether these differences are due to cognitive processes involved in second language acquisition, such as processing efficiency and familiarity with common phrases, or whether they are driven by sociolinguistic factors, such as cultural or linguistic influences from the writers' first language (in this case, Arabic). The study looked at these basic influences to show how the way people think and their social backgrounds can influence their academic writing. It also checked how the findings agree with or differ from recent studies about language influences in academic writing. This was to situate the findings of the study in the broader area of research on how languages influence each other in academic writing. The study situated its results within recent research that has investigated first-language grammar interference in the use of academic language in a second language.

This study enabled us to understand how the patterns of common word groups and adjective pairs compare with or differ from what has been found in similar research. It will add to the knowledge about how different languages affect academic writing. It will also demonstrate how second-language writers may rely on patterns of their first language that are familiar to them, and how these habits may transfer into their academic writing in English.



## Research Question

The following research question guided the current study:

**RQ.** Are there significant similarities and differences in the patterns of lexical bundles and adjective collocations in academic writing by native speakers of English compared to non- native Arab speakers of English?

## Significance of the Study

This research adds to the knowledge of cross-linguistic differences in academic writing, lexical bundles, and adjective collocations used by native English and Arab speakers of English. The importance of this study is multifold:

### --Linguistic Implications

This study contributes insights into how the structures of Arabic, as a language with different syntactic and lexical features compared to English, influence L2 academic writing. The study contributes to the larger field of contrastive linguistics by bringing forth important differences in the use of lexical bundles and adjective collocations, adding light to how certain linguistic features are transferred from L1 (Arabic) to L2 (English). This shows that the writing pattern of Arab speakers is molded by cognitive and syntactic factors, hence showing new perspectives of the cognitive processes second language acquisition and writing production involve.

### --Pedagogical Contributions

The findings hold practical implications for teaching English to Arabic-speaking students, particularly in academic contexts. By identifying the lexical bundles and adjective collocations most commonly used by Arab writers, the study can inform English language teaching (ELT) curriculum development, especially for L2 learners in higher education. The study underscores the importance of teaching specific academic bundles and collocations that facilitate cohesion and coherence in writing. Additionally, it suggests areas where Arab learners may benefit from targeted instruction to align their writing more closely with native English academic standards.

### --Cross-Linguistic Writing Studies

This research also contributes to the growing body of literature on cross-linguistic influences in academic writing. By focusing on Arabic-English comparisons, it fills a gap in the literature, as most studies on lexical bundles and collocations have primarily focused on Asian or European language backgrounds (Liu & Xie, 2019). This study provides a unique lens through which to understand the academic writing of Arabic speakers, and the insights are useful for linguists, applied linguists, and educators working in multilingual and multicultural contexts.

### --Future Research Directions

This research also provides a stepping-stone for future studies on L1 impact on L2 academic writing, particularly among learners of diverse linguistic backgrounds. For example, longitudinal studies might explore the way lexical bundle and collocation usage changes as learners advance through their university careers, or comparative studies might look for cross- linguistic similarities/differences among the Arab writers and speakers of other languages like Chinese, Russian, and Spanish. Furthermore, the study suggests that future research could analyze other aspects of academic writing, such as syntactic structures or academic discourse, taking into consideration the approach of cross-linguistic influence.

## Methodology

### Research Design

The current study adopts a mixed-methods design, incorporating quantitative analysis of lexical bundles and adjective collocations as well as qualitative discourse analysis of their contextual use. The quantitative part includes frequency analyses and statistical tests to compare the usage

patterns in the two groups, while the qualitative part examines the context of individual cases to explore cognitive and sociolinguistic factors.

### Study Corpus

The corpus for this study consists of 30 academic papers, with 15 papers written by native English speakers and 15 by Arab speakers of English. The papers were selected from the fields of linguistics and economics, ensuring that both groups adhere to similar academic standards and discourse conventions. All selected texts were published within the past five years to ensure the relevance of the data.

### Data Collection Procedures

**Lexical Bundles:** The analysis of lexical bundles was performed using the corpus tool AntConc, which provided a means of extracting word sequences that occurred with regular frequency across the papers under consideration. For the purposes of this research, a lexical bundle is defined operationally as a sequence of three or more words that co-occurred in at least five different instances within the corpus.

**Collocations:** Adjective-noun collocations were extracted using the same software to look for common adjective-noun pairs. All collocations were checked manually to be semantically appropriate and within normal academic usage.

### Data Analysis Procedures

#### Quantitative Analysis

The frequency of lexical bundles and adjective collocations in the corpus was calculated for each group respectively. Various statistical tests, such as t-tests and chi-square tests, were performed using SPSS to determine whether there were any significant differences between the groups in terms of the use of bundles and collocations. Table 1 below lists the raw frequency counts of lexical bundles in both corpora, while Table 2 shows the frequency counts for adjective collocations.

#### Qualitative Analysis

A selection of lexical bundles and collocations were analyzed in context to understand how they were used to perform specific rhetorical functions, such as hedging, presenting arguments, or emphasizing key ideas. This analysis aimed to identify patterns that may be influenced by the writers' L1 or cultural norms.

## Results

### Lexical Bundles

**Table 1**

*Frequency of Lexical Bundles in Native English and Arab English Writing*

Lexical Bundle	Native English Frequency	Arab English Frequency	p-value (t-test)
in the case of	12	8	0.029
due to	15	10	0.014
it is important to	20	18	0.527
the purpose of	18	13	0.044
in addition to	25	21	0.208

The analysis reveals significant differences between native and Arab English writers in their use of specific lexical bundles. The lexical bundles “in the case of” and “the purpose of”



were used significantly more frequently by native English speakers, with p-values of 0.029 and 0.044, respectively. These bundles, which are common in academic English (Biber et al., 1999), are key features of written academic discourse. Their higher frequency in native English writing could reflect familiarity with these formulaic expressions, which often facilitate clarity and cohesion in academic arguments (Hyland, 2008).

Conversely, “it is important to” showed no significant difference ( $p = 0.527$ ), which aligns with previous studies suggesting that certain bundles are frequently used by both native and non-native speakers due to their fixed and formulaic nature, making them easier to acquire (Chen & Baker, 2010). Similarly, the bundle “in addition to” also failed to show significant variation ( $p = 0.208$ ), suggesting that both groups employ this structure with similar frequency, likely because it is a relatively common and versatile phrase in academic writing across languages.

**Significant Differences:** The greater frequency of bundles like “in the case of” and “the purpose of” among native English speakers may be linked to a deeper familiarity with academic conventions and the structural norms that guide academic writing in English. Recent research by Biber et al. (2019) highlights how native speakers, particularly those with more experience in academic contexts, are more likely to employ these recurrent patterns fluidly. Arab English writers, by contrast, may use a more limited set of bundles, possibly influenced by the syntactic and semantic structures of Arabic, which may not feature similar collocational patterns (Altenberg & Granger, 2001).

The observed differences are consistent with cross-linguistic influence theories, where non-native speakers’ writing is shaped by the syntax and collocational preferences of their first language (Jarvis & Pavlenko, 2008). As such, Arab writers may face challenges in acquiring the full range of lexical bundles found in native English academic writing due to differences in the availability and use of similar phrases in Arabic.

## Adjective Collocations

**Table 2**

*Frequency and Types of Adjective Collocations in Native English and Arab English Writing*

Adjective Collocation	Native English Frequency	Arab English Frequency	p-value (t-test)
<b>significant difference</b>	10	7	0.211
<b>relevant information</b>	15	12	0.381
<b>major impact</b>	20	17	0.243
<b>critical factor</b>	18	15	0.234
<b>important aspect</b>	25	20	0.073

When examining adjective collocations, the findings suggest that both native and Arab English writers exhibit similar usage patterns, with no statistically significant differences in their preferences for common adjective-noun combinations. The p-values for all collocations (ranging from 0.073 to 0.381) indicate that the frequency of these adjective-noun pairs is comparable between the two groups.

The lack of significant differences in adjective collocations aligns with the findings of other studies in the field. For example, studies by Granger et al. (2015) and Nesselhauf (2005) have shown that certain adjective-noun collocations, especially those used frequently in academic writing (e.g., “relevant information”, “major impact”), are learned by second language learners early in their academic writing training. These collocations are often seen as part of the “core” vocabulary of academic English, which may explain why both native and non-native speakers use them in a similar way.

**Cultural and Cognitive Influence:** The results also suggest that the cognitive processes behind collocation acquisition may be less influenced by the writers’ native language than those

behind lexical bundle usage. As noted by Schmitt (2004), while language-specific preferences influence lexical bundle usage, the acquisition of adjective collocations is often influenced by broader, language-independent cognitive mechanisms, such as frequency-based learning and exposure to academic discourse. This could explain why both native and non-native English speakers tend to use these adjective collocations at similar rates, despite potential cross-linguistic influences.

Recent research has also suggested that the acquisition of collocations in a second language is largely dependent on exposure to and engagement with authentic academic texts (Wray, 2008). This could indicate that Arab English writers, despite their native linguistic differences, have developed a comparable level of familiarity with key academic collocations through exposure to English academic texts, textbooks, and journals, leading to their consistent use of these adjective-noun pairs.

**Frequency Variations:** While no significant differences were found, slight variations in frequency were observed for some collocations, such as “important aspect”, which was used more frequently by native speakers (25 occurrences compared to 20 for Arab English writers). These slight differences in frequency may reflect subtle stylistic preferences or the influence of specific academic writing traditions in English-speaking countries, as discussed by Hyland (2009).

The above results contribute to our understanding of cross-linguistic influences in academic writing, particularly in relation to the use of lexical bundles and adjective collocations. While significant differences were observed in the use of lexical bundles, suggesting a stronger adherence to specific English academic conventions by native speakers, no such differences were found in the use of adjective collocations, which may indicate that both native and non-native writers rely on universally recognized academic expressions.

## Discussion

### Comparison with Previous Research

The findings of this study provide several insights into the patterns of lexical bundles and adjective collocations used by native speakers of English and Arab speakers of English. As shown in Table 1, native English writers demonstrate a higher frequency rate for some lexical bundles, for example, in the case of and the purpose of, which is in agreement with earlier studies conducted by Biber et al. (2004) and Hyland (2008). These bundles are normally used to structure and develop complex arguments, a characteristic feature of academic writing.

Comparing the results to studies on Arab writers, such as Kharma and Hajjaj (2016) and Alharbi (2021), it is clear that Arab English writers rely more heavily on some bundles, such as as a result of and in addition to. The results suggest that the use of these bundles may be influenced by the syntactic structures of Arabic, which often favors a more explicit linking of ideas. The statistically significant differences found in the use of specific bundles, such as ( $p = 0.029$ ), point to a difference in academic writing practices between native and non-native writers.

Regarding adjective collocations, the lack of significant differences between the two groups, as shown in Table 2, calls into question several findings from previous studies. For example, Liu and Xie (2019) reported significant differences in adjective collocational behaviors of L2 learners of English, particularly among those with Asian backgrounds. In the current study, both English native speakers and Arabic speakers showed a tendency to use similar adjective-noun pairs, which suggests that the cultural and linguistic difference between Arabic and English might not be as sharp regarding collocational patterns as it is regarding lexical bundles. This finding might indicate that adjective collocations are less prone to cross-linguistic interference, due to their inherently predictable nature within academic discourse.



### **Cognitive and Sociolinguistic Inferences**

The cognitive processes behind language use in academic writing may also explain some of the observed differences. As noted by Gass and Selinker (2013), language learners often rely on familiar structures from their L1 when producing L2 texts, especially under time constraints or when engaging in high-stakes academic writing. The frequent use of bundles like *in addition to* by Arab writers may be reflective of a cognitive strategy to simplify the writing process, adhering to structures they are comfortable with from their native linguistic repertoire.

Furthermore, the sociolinguistic environment considerably impacts the patterns of writing. Arab scholars might be more swayed by the formal constructs inherent in Arabic that emphasize directness and formality, contrasting with the more implicit and cautious frameworks that are characteristic of native English academic writing (Canagarajah, 2017). This phenomenon may account for the increased prevalence of specific bundles related to explanation and elaboration within the Arab corpus.

### **Pedagogical Considerations**

Findings from this study carry important implications for L2 writing instruction, more so for Arab students learning English for academic purposes. Given the differences found in lexical bundle use, educators need to focus on the functional role of bundles in academic writing, those that are more common in English than in Arabic. Instruction that focuses on these bundles, along with their contextual use, can help Arab students improve the fluency and coherence of their writing. The corresponding use of adjective collocations suggests that teaching about collocations might require less explicit treatment, as students appear to have a sense of common pairings; still, more focused instruction with regards to more complex or subject-specific collocations might always be helpful, especially in areas where precision and variety of expression are valued.

### **Conclusion**

This article compares the patterns of lexical bundles and adjective collocations in native English and nonnative Arab speakers of English when writing in an academic mode. The analysis of differences in the use of lexical bundles showed up in several cases, such as in the case of *in addition to* and the purpose of. Arab speakers relied on a narrower range of bundles, possibly under the influence of their L1 structures. Conversely, the study found no significant differences in the use of adjective collocations between the two groups, suggesting that these linguistic forms may be less prone to cross-linguistic influence.

Despite the findings that help the knowledge of cross-linguistic diversity in academic writing, there are some limitations to this study. While the corpus size is representative, it was relatively small compared to other studies, and the focus on just two academic disciplines might limit the generalizability of the findings. Future research can expand the corpus to a more diverse set of disciplines and examine other lexical features such as verb phrases or prepositional phrases.

### **Future Research**

Further research may examine the development of lexical bundle and collocation patterns as learners develop greater expertise in academic writing. Longitudinal studies could track the changes in these patterns over time, providing a more dynamic view of the development of L2 academic writing. Additionally, comparative studies involving Arabic speakers and learners from a range of different linguistic backgrounds would be useful to determine whether the patterns identified are specific to Arabic or more generalizable across different L1 groups.

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**Biodata**

**Ali Jabbar Zwayyer** is an instructor, teacher and trainer in the General Directorate of Education in Thi-Qar, Gifted School in Thi-Qar where he has been a headquarter since 2020. He earned a BA in English Language & Art 1991, and an MA in TESOL applied Linguistics in 2013. Throughout his academic career, he has published one academic paper to peer-reviewed journals. His primary research interests lie in TESOL, pragmatics, discourse analysis, and stylistics.

E-mail: *alizwayyer@gmail.com*

**Sousan Sattar Boroujeni** is an Assistant Professor in the English Department at the Islamic Azad University, Najafabad Branch, where she has been a faculty member since 2001. She earned a BA in English Teaching in 1992, an MA in TEFL in 1996, and further advanced her expertise by obtaining a PhD in TEFL in 2018. Throughout her academic career, she has authored two books, "Study Skills" and "Basic English Grammar." She has also contributed several academic papers to peer-reviewed journals and presented her research at national and international conferences. Her primary research interests lie in pragmatics, sociolinguistics, and methodology.

Email: *ssattarb@gmail.com*

**Haider Hussein Katea Khanjar** is an Assistant Professor in the English Department at Thi-Qar University, where he has been a faculty member since 2011. He earned a BA in English Language & Art 2004, an MA in Linguistics & English Language in 2011, and further advanced his expertise by obtaining a PhD in Linguistics in 2018. Throughout his academic career, he has contributed several academic papers to peer-reviewed journals and presented his research at national and international conferences. His primary research interests lie in pragmatics, discourse analysis, and stylistics.

Email: *dr.Haider.Hussein.vKatea@utq.edu.iq*

**Elahe Sadeghi-Barzani**, an assistant professor at Islamic Azad University, Khorasgan Branch, was born in 1980 and began her teaching career at the age of 22. During the COVID-19 pandemic in 2020, she served as the head of her department for two years. She has published articles on TEFL and translation issues, with a strong interest in applied linguistics, psycholinguistics, and sociolinguistics. Elahe has supervised numerous M.A. and Ph.D. students in TEFL and translation, resulting in many dedicated teachers and translators who share their passion for English with joy

Email: *elaheSadeghi20@yahoo.com*



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