



## A Corpus-based Study of the Lexical Bundles in the Ph. D Linguistics Dissertations' Abstracts in Pakistani Universities

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### ABSTRACT

The present study analyses the lexical bundles (LBs) used by scholars of PhD linguistics in Pakistani universities. For this purpose, a small corpus of the abstracts of 73 PhD linguistics theses ranging from 2017 to 2022 was built. Antconc software was used to get the frequencies of the LBs. The objectives of the study were to examine the structural and functional taxonomies of those LBs. Biber's (1999) classification was used for the structural analysis, while Hyland's (2008) classification was used for the functional analysis. The study found there is a less tendency toward the use of 4-word LBs. It was disappointing to observe a low frequency of structural analysis for 4-word LBs. On the other hand, the functional classification of the LBs was relatively satisfactory due to the discovery of a higher number of 4-word LBs. The study stresses the importance of teaching the structure and functions of LBs from the intermediate level so that when these students reach the postgraduate level, they should be able to adhere to the rules of cohesion and coherence.

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## 1. Introduction

Academic writing requires a specific language that has its own vocabulary, norms, set of conventions, and modes of inquiry (Al-Zamel, 1998). Academic writing is planned, focused, structured, evidenced, and formal in tone and style. Language for academic purposes is different from how spoken language is constructed. Academic language is learned and developed. New writers, especially non-native writers, require targeted instructions. In the Pakistani context, where English has enjoyed the official language status for decades, students still face difficulties in mastering academic writing. These problems include lacking analytical skills, relying solely on grammatical rules, and inadequate knowledge of native-like language expression.

The lexical bundles are an excellent way of enhancing the academic writing skills of students (Biber, Conrad, & Cortes, 2003). The structures and functions of Lexical Bundles are not taught in Pakistani academia, making it challenging for even postgraduate students to write effectively. Lexical bundles are multi-word strings also called 'Ingrams' or 'lexical chunks', such as, *to the point*, *in the end*, *on the other hand*, and *at the end of*. Lexical bundles were identified by Biber, Johansson, Leech, Conrad, and Finegan (1999) as "bundles of words that show a statistical tendency to co-occur". There can be three words, four words, or five words LBs. Usually, three words LBs are common, five words LBs are rare, and four words LBs stand in between these two. Using lexical bundles is a perfect parameter for judging a writer's quality of academic writing.

Moreover, instead of writing fragmented sentences, LBs are an easy and smooth way to carry on the flow of the message. The significance of lexical bundles can be found in their contribution to fluent and natural language production. They function as ready-made chunks of language on which speakers can rely to convey their intended meaning efficiently. Lexical bundles

improve communication fluency and accuracy by acting as a link between individual words and more complex sentence structures. They are also important in academic writing and discourse because they aid in transmitting specialized knowledge and disciplinary conventions.

Researchers gain insights into the patterns and structures of language use by studying lexical bundles, allowing them to understand better how words and phrases are combined in different contexts. Lexical bundle analysis can reveal necessary information about language acquisition, language processing, and the characteristics of specific communication genres or registers. Overall, lexical bundle research benefits linguistics research because it sheds light on the underlying mechanisms of language production and has practical implications for language teaching and learning.

Corpus linguistics is the most reliable and effective method to extract LBs from the collection of selected data. Corpus linguistics' practicality and reliability make analysing even a huge amount of data easy. Corpus linguistics is a great help for language teachers as it highlights patterns of correct language use. For example, 'concordance' makes examining any word or phrase in a context very easy. This facility of corpus analysis identifies the company of the words they keep. In other words, the corpus helps determine the collocation of the words. Moreover, in terms of LBs, Corpus also highlights the structure and functions of frequent LBs.

Students in Pakistan who are pursuing graduate and postgraduate degrees are required to produce academic papers and theses, the majority of which must be written in the English language. Because of this, it is essential for students to acquire a strong command of the English language in order to get better results in their academic writing tasks and to participate in research initiatives. On the other hand, acquiring research literacy and writing for academic reasons might be difficult for pupils in Pakistan due to a number of obstacles. According to Ilyas and Khan (2015), students' lack of analytical abilities and weak command of the English language are two of the most fundamental challenges they confront. The majority of postgraduate students include a discussion of it in their drafts of their theses and dissertations. The current investigation is centered on the problem of inadequate command of the English language. The researcher will extract the usage of lexical bundles in doctoral theses in the field of linguistics in order to provide new writers with assistance in enhancing their grammatical abilities.

The investigation of lexical bundles in Ph.D. Linguistics Dissertation Abstracts from universities in Pakistan carry substantial importance. Through the examination of the occurrence, structure, and purpose of these lexical bundles, valuable insights are gained into the language usage patterns of scholars within this discipline. Emphasizing the early instruction of lexical bundle structure and function becomes crucial, as it equips students with the necessary skills to enhance coherence and cohesion in their academic writing as they advance through higher educational levels. This study's findings highlight the significance of such instruction in promoting effective written communication within the field of linguistics. The Research Objectives are to analyze the Lexical bundles' structural and functional taxonomies in the dissertations' abstracts and to examine the structural relationships between lexical bundles.

## **2. Literature Review**

This chapter reviews the previous research on LBs regarding academic discourse. This review will help us determine the theoretical grounding for the current research. Previously conducted researches suggest the pedagogical value of the LBs. The significance of using LBs cannot be ignored from the academic writing perspective. The more research is conducted on academic data, the clearer picture of academic writing can be viewed. O'Flynn (2022) conducted an important study in the subject of lexical bundles, and he came to the conclusion that instructors who want to include disciplinary lexical bundles into their instruction at different levels are now encountering a great deal of difficulty in doing so. In order to accomplish this, he offers a selection of resources in the form of computer-assisted language learning (CALL) software to those individuals who are instructing academic writing in fields related to the arts and humanities.

In their research, Kim and Kessler (2022) have targeted the writings of L2 English learners to examine the occurrences of recurring formulaic sequences. The findings show that students who scored high and low had different numbers of 3-word combinations. They also used different word combinations, which could explain their scores. The authors suggest that teachers should notice these patterns in second-language writing classes. They also recommend more research

on how the specific language used by second language learners affects their scores. Zhang, Yu, and Zhang (2021) did a comparative study of a self-built corpus of expert writers and EFL students. They found a significant difference between these two types of writing. The students' corpora showed more usage of verb phrase-based bundles, and there was less frequent use of prepositional phrase-based and noun phrase-based lexical bundles. However, when it comes to the functional categories, the study showed somewhat similar results of the two groups. He used Biber et al. (1999) structural taxonomy and functional taxonomy for this study.

Cui and Kim (2021) explored the use of bundles in the field of English education. He examined, in particular, the development between 2001 and 2020. He compiled a massive bundle of 2390093 words where he found that there is a huge number of changes in the usage of these bundles throughout these 20 years. Khamkhien (2021) in his analysis of Thai L2 English learner's academic writing, found a difference in the use of native and non-native writers when it comes to lexical bundles. This study was done on 53 research reports containing 60 thousand-plus words. Ren (2021), on the other hand, compares the variability and functions in the applied linguistics and pharmaceutical sciences' research articles. They applied Biber et al. (2003) and Biber et al. (2004) as the framework of their study. Their study sheds light on the importance of teaching lexical bundle patterns to improve the academic writing of students.

Using Biber's functional taxonomies of lexical bundles, Hussain, Zahra, and Abbas (2021) investigated the discourse functions of lexical bundles in Pakistani chemistry and physics textbooks. As stance expressions, discourse organizers, and referential expressions, lexical bundles are common in university classroom teaching, according to Biber and Barbieri (2007). Lexical bundles are also common in academic writing. This particular study has been built on prior research by analysing the utilization of LBs across various spoken and written registers based on university registers, including instructional as well as student advising contexts. Surprisingly, non-academic registers have a higher frequency of lexical bundles, especially in written course management, contradicting previous findings favoring speech over writing.

The most relevant study to the current research is done by Yousaf (2019), who explored the use of LBs as building blocks of academic discourse. According to him, all dissertations from multiple disciplines show a heavy reliance on the use of LBs. However, the structure and function of these LBs vary from discipline to discipline, which is quite interesting to know. Take for instance, the field of English studies, which has the highest percentage of noun phrase fragments, whereas the field of biosciences has the highest percentage of verb phrase fragments. Let's look at this in more detail. For the purpose of conducting a structural analysis of discipline-specific LBs, Noor and Anwar (2019) utilized the taxonomy developed by Biber et al. (1999). The results are pretty much the same as the previous studies. The results of such studies put stress on the importance of a language pedagogy in academia that is frequency based.

Professionals in applied linguistics and literature have been observed to employ bundles with varying frequencies, exhibit distinct preferences when selecting lexical items to complete structural bundles, and employ functional bundles in diverse manners. Rezaie, Farahani, and Masoomzadeh (2020) have compared the use of lexical bundles in Ph.D. dissertations and Master theses. These researchers have observed that the abstract part of PhD and M.A dissertations has more lexical bundles than other most important genres of theses, i.e., introduction and conclusion.

In addition, Shin, Cortes, and Yoo (2018) conducted an exploratory study in which they looked into the use of definite articles inside lexical bundles in the academic writing of L2 students. They discovered that writers of a second language utilize a smaller number of lexical bundles that are less diverse. The research also showed that students commonly make errors while utilizing definite articles within these bundles, mainly by omitting them. This was the most common type of error. According to the findings, lexical bundles might be an effective educational tool for teaching the usage of definite articles in writing in a second language. Hyland, in his article titled "Lexical bundles and disciplinary variation," published in 2008, explores the function of four-word bundles in the academic language of several fields. In this study, a corpus of research articles, doctorate dissertations, and Master's theses are analyzed to determine the frequency of bundles as well as preferences for their use. The findings emphasize the importance of bundles in shaping disciplinary variation and establishing textual coherence.

This literature review covers the updated work on lexical bundles in the past 5 years. It covers different aspects of lexical bundles being explored by different researchers, including their pedagogical value in academic writing, challenges faced by teachers, the occurrence of formulaic sequences in L2 English learners' writing, differences in bundle usage between expert writers and EFL students, changes in bundle usage over time, variation across disciplines, and discourse functions in specific subjects. It emphasizes the significance of lexical bundles in academic writing and the need to teach bundle patterns for improved writing skills. However, no significant study fills the gap of careful examination of the Ph.D. linguistics' dissertations written by Pakistani scholars. Therefore this study is aimed at filling this gap.

### **3. Methodology**

#### **3.1 Population and Delimitation of the Study**

The population of this study is PhD linguistics theses archived in the HEC repository. It has been found that the 'abstract' of such theses contain more bundles than the other two-part genres, i.e., Introduction and Conclusion Rezaie et al. (2020). Hence, to delimit the study, the abstracts of theses published during 2017-2022 were considered for the corpus analyses. These abstracts are 73 in number.

#### **3.2 Instrumentation**

Lawrence Anthony's "Antconc 3.5" software has been used to extract the lexical bundles from the selected files. The cluster's minimum size of lexical bundles was set to 4, and the maximum size was also set to 4. The minimum frequency and range were selected as 5.

#### **3.3 Research Questions**

- i. What are the structural and functional characteristics of the lexical bundles in PhD linguistics theses?
- ii. How do lexical bundles in PhD linguistics theses exhibit structural relationships?

### **4. The Framework**

The article "Structural Classification of Lexical Bundles in Academic Prose" which was published in 1999 by Biber et al. serves as the foundation for the conceptual framework that underpins the structural analysis of lexical bundles. The key work "Structural Classification of Lexical Bundles in Academic Prose" by Biber et al., which was published in 1999, has made a substantial contribution to our understanding of syntactic as well as discourse-level patterns in academic writing. This groundbreaking study sought to identify and categorize lexical bundles, or recurring word combinations, in a corpus of academic prose. Biber et al. used a comprehensive methodology to analyze a large corpus of diverse disciplines, allowing them to capture typical phraseological patterns in academic writing. Their findings shed light on the structural organization of lexical bundles, their distribution across disciplines, and their role in communicating specific communicative functions. The study by Biber et al. remains a cornerstone in the field, guiding subsequent research on phraseology in academic discourse. Hence, Biber et al.'s 1999 work, "Structural Classification of Lexical Bundles in Academic Prose," is a seminal theoretical framework for analyzing and classifying lexical bundles in academic writing.

When analyzing the functional classification of lexical bundles, the functional framework proposed by Hyland (2008) is preferred over that of Biber et al. (1999). As Hyland himself states, Biber's framework is more useful for larger spoken and written corpora rather than smaller genre-based analysis of written texts. Hyland (2008) functional framework has been influential in academic writing research. This framework presents a systematic approach to understanding the communicative functions of linguistic features in academic discourse. By exploring the rhetorical purposes and pragmatic functions of language choices, Hyland's framework provides valuable insights into how writers employ language to construct meaning and convey disciplinary knowledge. This influential work has shaped subsequent research on academic writing, facilitating a deeper understanding of the interplay between language use, discourse conventions, and disciplinary practices in academic contexts. Before the study's analysis, here is a quick primer on both frameworks. The Biber's framework for the structural analysis of Lexical Bundles is presented in table 1.

**Table 1: Structural Classification of Lexical Bundles in Academic Prose**

Structure	Examples
Noun Phrase with <i>of</i> -phrase fragment	<i>the end of the, the beginning of the, the base of the, the point of view of</i>
Noun phrase with other post-modifier fragments	<i>the way in which, the relationship between the, such a way as to</i>
Prepositional phrase with embedded <i>of</i> -phrase fragment	<i>about the nature of, as a function of, as a result of the, from the point of view of</i>
Other prepositional phrase (fragment)	<i>as in the case, at the same time as, in such a way as to</i>
Anticipatory <i>it</i> + verb phrase/ adjective phrase	<i>it is possible to, it may be necessary to, it can be seen, it should be noted that, it is interest to note that</i>
Passive verb + prepositional phrase fragment	<i>is shown in figure/ fig., is based on the, is to be found in</i>
Copula <i>be</i> + noun phrase/ adjective phrase	<i>is one of the, may be due to, is one of the most</i>
(Verb phrase +) <i>that</i> -clause fragment	<i>has been shown that, that there is a, studies have shown that</i>
(Verb/ adjective +) <i>to</i> -clause fragment	<i>are likely to be, has been shown to, to be able to</i>
Adverbial clause fragment	<i>as shown in figure/ fig., as we have seen</i>
Pronoun/ noun phrase + <i>be</i> (+...)	<i>this is not the, there was no significant, this did not mean that, this is not to say that</i>
Other expressions	<i>as well as the, may or may not, the presence of absence</i>

Source: (Biber et al., 1999, pp, 1015-1024)

**Table 2: Functional Framework Proposed by Hyland (2008)**

Main Type of Bundle	Further Types	Description	Examples
Research-oriented bundles: helping writers to structure their activities and experiences of the real world.	Location	indicating time/place	at the beginning of, at the same time
	Procedure		the use of, the role of, the purpose of the
	Quantification		the magnitude of the, a wide range of
	Description		the structure of, the size of the
Text-oriented bundles: dealing with the organization of the text and its meaning as a message or argument.	Topic	related to the field of research	
	Transition signals	establishing additive or contrastive links between elements	in addition to the, on the other hand
	Resultative signals	marking inferential or causative relations between elements	as a result of, it was found that
	Structuring signals	text-reflexive markers which organize stretches of discourse or direct reader elsewhere in the text	in the present study, in the next section
Participant-oriented bundles	Framing signals	situating arguments by specifying limiting conditions	in the case of, with respect to the, on the basis of
	Stance features Engagement features	conveying the writer's attitudes and evaluations addressing readers directly	are likely to be, maybe due to, it is possible that it should be noted that, as can be seen

## 5. Results And Discussions

The suggested setting in the software showed 13 types of LBs. The following are the most common LBs in the 73 abstracts chosen for the study.

### 5.1 Frequency of LBs

The most frequent 4-word LB is 'In the field of', which is only ten times frequent and is found in only 08 abstracts. Lexical cohesion refers to the unity of text achieved by the author's usage of words with an interconnected lexical or semantic string of words (Nunan, 1993). Overall, only thirteen 4-word LBs are found among all 73 abstracts, which shows a lack of cohesive style in the abstracts. In order to achieve cohesion, one must adopt more and more LBs.

**Table 3: Most Frequent 4-word LBs in the Abstracts of Selected Decertations**

LBs	Frequency	Range	LBs	Frequency	Range
In the Field of	10	08	Findings of the study	06	06
On the basis of	10	09	In the form of	06	05
The result of the	09	08	On the other hand	06	06
The finding of the	08	08	The data was collected	06	06
Of the present study	07	06	Objective of the study	05	05
The present study is	07	07	To find out the	05	05
Data was collected from	06	06			

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### 5.2 Structural Classification of LBs

According to Biber's model, the structural analysis shows that for the last five years, Ph.D. scholars have used a much smaller number of common lexical strings of words. As mentioned, very few structures have a frequency of more than five.

**Table 4: Structural Classification of Lexical Bundles in Academic Prose in the Abstracts of the Ph.D. Linguistics dissertations (Biber et al., 1999)**

Structure	Examples of 4-word LBs from the Abstracts of the dissertations
Noun Phrase with 'Of-phrase' Fragment	The result of the, the findings of the,
Noun Phrase with other post-modifier fragments	*The relationship among the, the relationship between the, differences between the
Prepositional Phrase with embedded 'of-phrase' fragment	In the form of, in the field of, on the basis of
Other Prepositional Phrase (Fragment)	Of the present study, on the other hand, to find out the
Anticipatory 'it' + verb phrase/Adjective phrase	Nil
Passive verb + Prepositional phrase fragment	Nil
Copula 'be' + noun phrase/adjective phrase	Nil
(Verb phrase +) that-clause fragment	Nil
(verb/adjective +) to-clause fragment	As likely to have
Adverbial clause fragment	Nil
Pronoun/Noun phrase +be (+...)	Nil
Other expressions	Nil

The table presents a comprehensive analysis of the lexical cohesion within the abstracts of Ph.D. dissertations in the field of linguistics. The study focuses on identifying and classifying 4-word lexical bundles (LBs) present in the abstracts. Surprisingly, the research reveals a scarcity of such bundles, with only a few examples found throughout the selected dissertation abstracts. Moreover, most structural strings exhibit a complete absence of any LBs. This indicates a significant lack of cohesive writing style among the academic prose in these abstracts,

emphasizing the need for greater utilization of lexical bundles to enhance textual coherence and readability.

**Table 5: Structural Relationships between Lexical Bundles Instances**

Type of Relationship	Examples from the selected Abstracts of dissertations
Singular & Plural forms	Null
Past & Present Forms	Null
Positive & Negative Forms	<i>has not been (yet) conducted</i>
Active & Passive Forms	Null
Different Prepositions/Conjunctions	<i>The study has been (conducted at/from/to)</i>
Different Verbs	<i>The study also found/intended/presents/reveals/showed</i>
Different Subjects	<i>The results/proverbs/the research findings indicate</i>
Different Adjectives	Null
Different Degrees of Certainty	<i>likely to have negative attitudes, seems to resolve the issue, can create new thoughts</i>

Another way to analyze the lexical bundles used by scholars was to see what type of lexical relationship is present in the lexical bundles. We can see a relatively satisfactory pack of examples here though the frequency element has not been included in this type of analysis. Although the number of lexical bundles is relatively higher compared to previous findings, it remains insufficient to establish strong structural relationships between instances. Enhancing the utilization of lexical bundles is essential to improve overall textual cohesion and coherence.

### 5.3 Functional Classification of LBs

The researcher preferred Hyland’s functional framework for the functional classification of the LBs used in the PhD Dissertations by Pakistani scholars; There is a hint of relatively frequent use of research, text, and participant-oriented LBs.

**Table 6: Research-Oriented Bundles Instances in the Selected Dissertation’s Abstracts**

<b>Location</b>	At the same time,
<b>Procedure</b>	Null
<b>Quantification</b>	Wide range of (data), considerable amount of (material)
<b>Description</b>	Structure of a (text), this area of (study)
<b>Topic</b>	This area of (study), topic of the (current research)

Table 6 provides an overview of the different types of lexical bundles found in the abstracts of the selected dissertations. Interestingly, with the exception of "procedure," instances for each type of bundle have been identified. Although the total number of 4 words lexical strings is only seven, this demonstrates a relative emphasis on research-oriented language patterns, reflecting the authors' commitment to presenting their findings cohesively and effectively. Nevertheless, it hints at the authors' proficiency in crafting academic prose focusing on clarity and precision.

**Table 7: Text-oriented Bundles Instances in the Selected Dissertation’s Abstracts**

<b>Transition signals</b>	<i>On the other hand, In addition to it</i>
<b>Resultative signals</b>	<i>As a result of, it was found out that</i>
<b>Structuring signals</b>	<i>In the present case/structure/study, the last chapter (discusses)</i>
<b>Framing signals</b>	<i>On the basis of</i>

Table 7 displays instances of types of bundles found within the abstracts of the selected dissertations. The presence of instances for every type of bundle is a positive sign, indicating a well-developed and cohesive writing style. It demonstrates that the authors have effectively employed lexical bundles to connect ideas and enhance the overall coherence of their texts.

The table 8 titled "Participant-oriented Bundles Instances in the Selected Dissertation’s Abstracts" presents instances of two types of bundles, namely "Stance features" and "Engagement features," found in the abstracts of the Ph.D. dissertations. Only one example of "stance features" was discovered, while no instances of "Engagement features" were found. This

indicates a limited utilization of participant-oriented bundles, which may affect the overall coherence and depth of the research abstracts.

**Table 8: Participant-oriented Bundles Instances in the Selected Dissertation's Abstracts**

Stance features	May not be possible
Engagement features	Nil

## 6. Conclusion

The study was conducted on using LBs in the PhD linguistics dissertations by Pakistani scholars. The researcher used a mixed framework. Among all the parts of any dissertation, the abstract is said to include a more significant number of LBs because it presents all necessary information in a few words. For such a purpose, a researcher must use fixed expressions that may contain a more significant message. Therefore, the study's focus was on the dissertation's abstract. Overall, the most frequent 4-word LBs were considerably fewer in number. Even the most frequent among all the 73 abstracts happened to appear only ten times. The study showed that according to the structural classification of Biber, only a few 4-words LBs came into focus. However, when it came to the classification according to the functions of LBs the analysis showed that the PhD scholars had used them relatively frequently.

Grammar, writing skills, and structure analysis are usually taught at the intermediate level. They carry these skills at the postgraduate level: It is high time the students at the intermediate level should be taught how to improve their academic writing skills. Teachers should teach the structures and functions of the LBs so that the students must be aware of these chunks. Knowledge of the structure, function, and usage of LBs will help students improve their cohesion and coherence in their academic writing. Secondly, students should be taught the most frequent LBs in the very beginning. In the later stage, they can also be made acquainted with less common or rare types of LBs. This will help them master the usage of the most commonly used LBs.

The current research has been conducted on a smaller scale. There is a vast scope for analyzing LBs in larger corpora. The study can be conducted for all the PhD linguistics dissertations. A larger corpus should result in much better analysis and findings. Moreover, a diachronic study will also be very interesting.

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