| P-ISSN 2708-6453 | Pakistan Languages and Humanities Review | Oct-Dec 2022, Vol. 6, No. 4 |
|---|---|---|
| O-ISSN 2708-6461 | http://doi.org/10.47205/plhr.2022(6-IV)06 | [51-60] |

Pakistan Languages and Humanities Review
www.plhr.org.pk

RESEARCH PAPER

# Exploring Disciplinary Variation in Pakistani Academic Writing: A Corpus-Based Research on Doctoral Dissertations

**Muhammad Ahmad*[1] Prof. Dr. Muhammad Asim Mahmood [2] Ali Raza Siddique [3]**

1. PhD Scholar, Department of Applied Linguistics, Government College University, Faisalabad, Punjab, Pakistan
2. Dean, Faculty of Arts and Social Sciences, Government College University, Faisalabad, Punjab, Pakistan
3. PhD Scholar, Department of Applied Linguistics, Government College University, Faisalabad, Punjab, Pakistan

**Corresponding Author** ahmad453@yandex.com

**ABSTRACT**

It was a corpus-based research and aimed to explore disciplinary variations (in the use of phrasal features) in academic writing (AW) produced by L2 writers of English across disciplines. Corpus of this research (comprising 80 dissertations written by Pakistani doctoral level candidates from two academic disciplines i.e. Arts and Humanities and Life Sciences) was analyzed through AntConc after tagging through POS and MAT Taggers. The results revealed Pakistani AW (across academic disciplines) containing nouns more than any other phrasal feature. In addition, results also revealed the order of the highest and lowest frequencies to be similar both inter-, and intra-disciplines. It meant that Pakistani AW contained phrasal features. However, due to the frequent use of same features (i.e. nouns) in all of the eight sub-disciplines of Arts and Humanities and Life Sciences, disciplinary variation (except some inter- and intra-disciplinary variations in the frequencies of the use of the said features) was not significantly observed in Pakistani AW. On the basis of these results, it was concluded that Pakistani AW did not reflect significant disciplinary variation (a characteristic feature of L1 and L2 AW) in the use of phrasal features.

**KEYWORDS** Academic Writing, AW Characteristic Features, Disciplinary Variation, Phrasal Features

## Introduction

Academic disciplines are investigated from at least five perspectives e.g. historical, anthropological, management, philosophical, and sociological (Krishanan, 2009) that (perspectives) differ from each other due to the emphasis they put on cultural practices, development of disciplines, discipline based division of knowledge in relation with education as well as market demands, historical conditions, and nature and theory of knowledge (Abbot, 2001).

This research employs philosophical perspective owing to the applied, and pure linguistic research choice. In fact, conventional division of knowledge is well rooted in philosophical perspective (Beecher & Trowler, 2001), and it is the only perspective that classifies knowledge considering epistemological features of a discipline (Russel, 2002).

Research (Biber, 2006; Hyland, 2006, 2010) on linguistic variation across academic disciplines reports the disciplines to rely on lexicogrammatical features to realize communicative purposes. Thus, it means that this impression is well recognized for the reason "disciplines differ in their epistemological beliefs, research practices, and knowledge structures" (Gray, 2015: 1). In fact, linguistic variations (across different disciplines) appear as a result of the discourse community members' expectations of discourse community (Hyland, 1998). Furthermore, linguistic feature variations are caused owing to the intrinsic differences lying between knowledge construction, and research practice disciplines (Charles, 2003). It implies that the disciplines differ in the lexicogrammatical features used. Therefore, this research aims to investigate phrasal complexity features in different disciplines following the academic disciplines classification (Nesi & Gardner, 2012) that is based on broad disciplinary groupings i.e. Arts and Humanities, Life Sciences, Physical Sciences, and Social Sciences. The said disciplinary groupings involve a wide range of subjects (see Nesi & Gardner, 2012) that is difficult to study. Therefore, this research worked on two disciplines incorporating a list of representative sub-disciplines (Table 1) i.e. English, History, Linguistics and Philosophy (Arts and Humanities), Agriculture, Biology, Food Science and Psychology (Life Science).

**Research on Academic Disciplines**

Academic disciplines (as discussed in Section 1.1) are different from one another on the basis of certain features. This subsection is aimed to review the previous research on the features causing differences among different disciplines.

**Research on Disciplinary Differences Based on Linguistic Structures**

A few studies have been conducted to explore disciplinary differences caused by linguistic structures. For example, Ward (2007) investigated the use of collocations in a single discipline i.e. engineering. The results (obtained through corpus analysis) revealed the complex noun phrase structures being the characteristic feature of the engineering texts. Therefore, the research regarded the use of linguistic features to be highly discipline-specific. However, the use of the said structures was observed to be different among the corpora prepared from five different texts related with chemical engineering. Durrant (2017) studied the use of lexical bundles to understand the disciplinary differences. The corpora for this research comprised student writings. The results showed significant differences between soft (comprising classics, English and law) and hard (comprising biological sciences, chemistry and engineering) sciences disciplines. The student writings from soft sciences disciplines (i.e. humanities and social sciences) were reported to focus on abstract constructs, historical moments, points in a process, multiple contingent viewpoints, establishing centrality, evaluation, putting ideas in relationship with each other, and setting things in interpretive forms. On the other hand, the writings from science and technology disciplines were found to focus on the physical world constructs, quantification (presenting data in tables and figures), and cause and effect relationships. Thus, this research reported variation in the use of lexical bundles in hard and soft sciences disciplines. Another research (Crossley, Russell, Kyle & Römer, 2017) investigated lexical and cohesion differences in the corpora of student writings from micro disciplines (comprising biology, industrial engineering, mechanical engineering and physics) of a single macro discipline (i.e. science and engineering). The results showed disciplinary differences at the cohesion, lexical and syntactic levels in the said corpora from the said disciplines. All of the studies discussed in this section show one thing in common i.e. academic disciplines vary in terms of the use of linguistics features. This research, therefore, has been attempted to explore variation in Pakistani academic disciplines.

**Research on Disciplinary Differences Based on Syntactic Complexity Features**

Syntactic complexity is considered to be a strong reference to diversity, richness and variety in the writing (Bulté & Housen, 2012; Norris & Ortega, 2009). Therefore, it (syntactic complexity) has extensively been used to determine the maturity in writing (both L1 and L2). Past research on L1 and L2 writing has rigorously explored this construct. This subsection is aimed to present the review of that research.

Karakaya (2017) conducted a research to explore different complexity measures (clausal and phrasal) to examine the AW across three scientific disciplines (i.e. agronomy, industrial and manufacturing systems engineering, and applied linguistics). The corpus for the research comprised 1.9 million words, and was compiled from two AW registers (i.e. master theses and research articles). The results based on ANOVA, MANOVA and corpus-based analyses indicated the AW from the science disciplines being highly characteristic of the dense nominal style. In addition, the results indicated the significant use of clausal subordination, and phrasal elaboration in master theses, and research articles respectively. Furthermore, the results also indicated disciplinary variations in the use of complexity measures. For example, applied linguistics was found to be characterized by the use of finite complement clauses whereas agronomy was found to be characterized by the use of nouns and its premodifications. Another research (Elliott, 2019) investigated variation in the use of nominal premodifiers in AW produced by the advanced level students across 16 disciplines. The results showed advanced level AW characterizing discipline-based variations related with the use of nouns and their premodifiers.

Noun phrases (that cause AW complexity) are known as the characteristic features of AW and are responsible for creating a specialized type of discourse that is informationally dense. Furthermore, the complexity in AW is created by noun phrases and not by clausal phrases (because clausal phrases characterize conversation). However, the degree of AW complexity is observed to vary according to the discipline it belongs to (Elliott, 2019). Research (Biber & Gray, 2016) on complexity in professional AW across historical periods and disciplines indicated clear variations among humanities, social sciences, specialist sciences, and popular sciences disciplines showing the use of nouns as nominal premodifiers with highest and lowest frequency occurring in specialist science and humanities AW.

Gray (2015) examined research articles and observed disciplinary variation in the use of linguistic features that (disciplinary variation in the use of linguistic features) was found to correspond with traditional academic groupings i.e. hard sciences and humanities. Later, another research (Jalilifar, White & Malekizadeh, 2017) investigated the use of complex noun phrases applying a comparative approach. In this regard, the researchers compared both 'hard' and 'soft' science disciplines by examining 'physics' and 'applied linguistics' textbooks being representative of the said disciplines respectively. The results revealed the use of 'classifiers' i.e. the use of nouns combined with premodifying adjectives and reported disciplinary variations in use of the said features.

Thus, building on the previous research, Pakistani AW is also hypothesized to reflect the same disciplinary variations. Therefore, this research is aimed to explore the said variations to establish thereby whether Pakistani AW conforms to the norms or not. In this regard, the following question has been raised for this research.

- Whether the Pakistani AW reflects disciplinary variations in the use of phrasal features or not?

It is important to note here that all of the above discussed research was conducted on the genres (e.g. articles, textbooks etc.) different from that of this research therefore they have no parity with this research. However, they are a part of this research because of their significance in relation to the research argument and the use of different features in the AW.

## Material and Methods

### Research Design

This is a corpus-based descriptive research on L2 writing. Corpus for this research has been taken from Ahmad (n. d.) a doctoral dissertation on phrasal complexity in Pakistani AW, and comprises dissertations written by Pakistani (L2) PhD researchers across eight sub-disciplines (see Table 1) of Arts and Humanities and Life Sciences disciplines (see Section 1.1 also). The reason for selecting dissertation for this research is that it (dissertation) is the most important sub-register of AW. Being a genre with strict rhetorical and linguistic requirements, dissertation writing is considered difficult even for good academic writers. For these reasons, dissertation is taken as an important means for disciplinary and genre-based research.

**Table 1**
**Disciplinary Classification Employed in This Research**

| Sr. | Academic Disciplines | Sub Disciplines | Total |
|---|---|---|---|
| **1** | Arts and Humanities | English, History, Linguistics, and Philosophy | 40 |
| **2** | Life Sciences | Agriculture, Biology, Food Sciences, and Psychology | 40 |
| | | Grand Total | 80 |

Source: Nesi and Gardner (2012) shortlisted in Gardner, Nesi and Biber (2018)

### Research Model

This research is based on the model used in Ahmad (n. d.) that employs a large number of linguistic, clausal, phrasal and intermediate features. However, it is not possible to use all of the said features in this research. Therefore, this research employs only phrasal features (i.e. nouns, attributive adjectives, premodifying nouns, nominalizations, of genitives, prepositional phrases) to study disciplinary variations in Arts and Humanities and Life Sciences dissertations written by Pakistani doctoral candidates.

### Corpus Analysis

This process is completed in a number of steps. First of all, the corpus (that was tagged through POS and MAT Taggers) was processed through AntConc. Then, the formulaic patterns were proposed, applied and individually searched in the corpus. After that, their clusters were extracted by customizing the minimum and maximum cluster sizes as per the number of words in formulaic patterns. Such as, when the formulaic pattern of three words was searched with the respective tags by setting its cluster at the set 6 at minimum and maximum cluster options, corpus expressions resulted as per Figure 1. This process helped to obtain the frequencies of different features that were retrieved in an Excel list of expressions in the last procedural step.

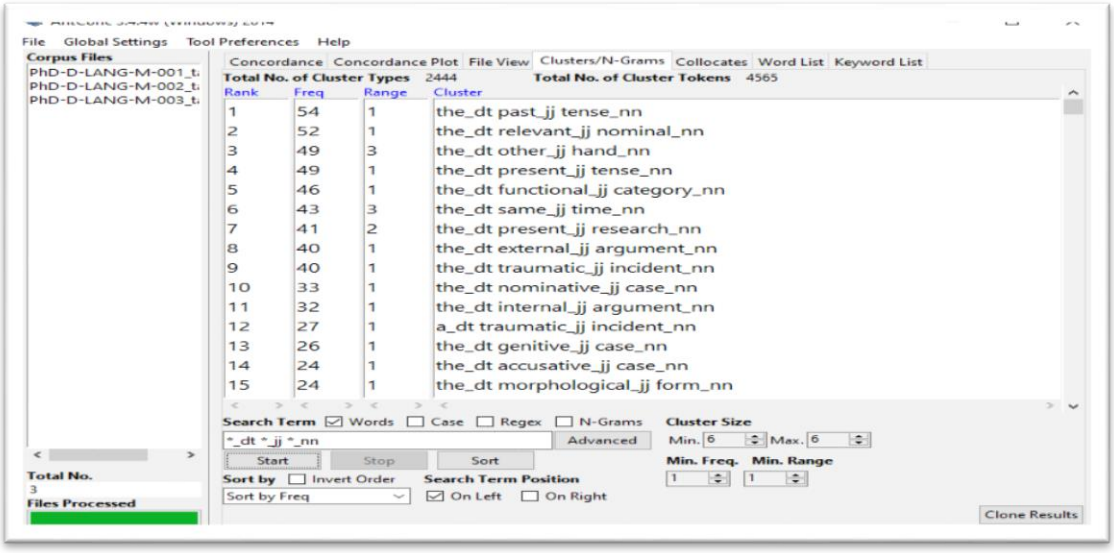


Figure 1. Visual Representations of Corpus Expressions

**Results and Discussion**

The question of this research has been aimed to know whether the Pakistani L2 AW reflects disciplinary variations in the use of phrasal features or not. The answer to this question is discussed in 3.1 and 3.2.

**Use of the Phrasal Features in Arts and Humanities Discipline**

Pakistani doctoral dissertation writers from different sub-disciplines of Arts and Humanities used all the phrasal features i.e. nouns, attributive adjectives, premodifying nouns, nominalizations, of genitives and prepositional phrases. However, frequencies of the use of these features were different. Among all of the said features, dissertation writers from the sub-disciplines (i.e. English, history, linguistics and philosophy) of Arts and Humanities used nouns the most frequently. Among the four sub-disciplines, the dissertation writers from English used the nouns in the highest frequency whereas the dissertation writers from linguistics used the same feature in the second highest frequency. The dissertation writers from philosophy and history, on the other hand, used nouns in third and fourth highest frequencies. After nouns, attributive adjectives were found in the second most frequent use of the writers from Arts and Humanities (except the writers from history). They (the writers from history) used premodifying nouns in the second highest frequency. See Table 2 for frequencies of the phrasal features in detail.

**Table 2**
**Frequencies of Phrasal Features in Arts and Humanities Discipline**

| Phrasal Features | Frequencies in English | Frequencies in History | Frequencies in Linguistics | Frequencies in Philosophy | Total |
|---|---|---|---|---|---|
| Nouns | 158977 | 9045 | 156660 | 13469 | 338151 |
| Attributive adjectives | 28769 | 1696 | 28058 | 2737 | 61260 |
| Premodifying nouns | 22726 | 1732 | 21860 | 2078 | 48396 |
| Nominalizations | 21434 | 1230 | 24158 | 2961 | 49783 |
| of genitives | 9825 | 688 | 9811 | 895 | 21219 |

| | | | | | |
|---|---|---|---|---|---|
| Prepositional phrases | 9344 | 707 | 9103 | 706 | 19860 |
| Grand Total | 251075 | 13868 | 249650 | 22846 | 538669 |

**Use of the Phrasal Features in Life Sciences Discipline**

The dissertation writers from Life Sciences sub-disciplines (i.e. agriculture, biology, food sciences and psychology used nouns (as the results in Table 3 show) the most frequent times as compared to the other phrasal features i.e. attributive adjectives, premodifying nouns, nominalizations, of genitives, and prepositional phrases. Total number of nouns used by the writers from Life Sciences discipline is 161129 out of which dissertation writers from: biology used them in the first; food sciences in the second; psychology in the third; and agriculture in the fourth highest frequencies.

**Table 3**
**Frequencies of Phrasal Features in Life Sciences Discipline**

| Phrasal Features | Frequencies in Agriculture | Frequencies in Biology | Frequencies in Food Sciences | Frequencies in Psychology | Total |
|---|---|---|---|---|---|
| Nouns | 35315 | 50941 | 38485 | 36388 | 161129 |
| Attributive adjectives | 5791 | 8560 | 6196 | 5927 | 26474 |
| Premodifying nouns | 6717 | 10365 | 7838 | 4201 | 29121 |
| Nominalizations | 5681 | 5931 | 4837 | 5036 | 21485 |
| of genitives | 2629 | 3277 | 2712 | 2114 | 10732 |
| Prepositional phrases | 1766 | 2141 | 1513 | 1376 | 6796 |
| Grand Total | 57899 | 81215 | 61581 | 55042 | 255737 |

The results as shown in Table 2 and Table 3, and discussed in Section 3.1 and Section 3.2 indicate that all of the Pakistani doctoral dissertation writers from Arts and Humanities and Life Sciences sub-disciplines make frequent use of the nouns. It indicates that Pakistani doctoral level dissertation writers (due to the frequent use of nouns only) do not reflect variation particularly in the use of nouns across disciplines.

These results seem to deviate from the principal notion that the academic discipline is one among a number of factors affecting the use of phrasal features in AW (see Biber & Gray, 2016). In addition, the results of this research are different from the results (see Biber, 2006; Biber & Gray, 2016; Gray, 2015) that the science research article writers make an extensive use of phrasal complexity features that is more than humanities, and social science research article writers i.e. the dissertation writers (sampled in this research) from Arts and Humanities have used phrasal features more than that of the Life Sciences.

The results of this research are also different from those in Gray (2015), which particularly confirmed that research article writers from different disciplines use phrasal complexity features in different amounts. For example, prepositional phrases (as post-noun modifiers), and relative clauses were reported in frequent use by history, and physics academic writers respectively. In contrast, dissertation writers from both disciplines (as investigated in this research) used nouns the most of all other phrasal features. Similarly, the results of this research also differed from those of Staples, Egbert, Biber and Gray (2016) that showed variation in the use of phrasal features across disciplines, and genres e.g. noun-noun sequences were less frequently used in Arts and Humanities disciplines as compared to Life and Physical Sciences disciplines. Furthermore, the results of this research

are also different from the results of Biber and Conrad (2009) which claims that the use of phrasal features varies across different disciplines e.g. applied linguistics, engineering, medicine, and psychology.

In addition to the similarities in the use of nouns, certain other inter- and intra-disciplinary similarities have also been observed from the results (see Table 2, Table 3 and Table 4) of this research. For example, it has been observed that Pakistani doctoral dissertation writers from different sub-disciplines (i.e. English, history, linguistics and philosophy) of Arts and Humanities used 'nouns' in maximum frequency (see Table 2). Among the said disciplines, dissertation writers from English used the nouns more than the other three i.e. linguistics, philosophy and history. The said sub-disciplines used the nouns in second, third and fourth highest frequency. Similarly, Pakistani doctoral dissertation writers from the sub-disciplines of Life Sciences discipline maintained the use of nouns in the highest frequency. As far as the intra-disciplinary use of nouns is concerned, dissertation writers from Life Sciences sub-disciplines i.e. biology, food sciences, psychology and agriculture were found to use nouns in first, second, third and fourth highest frequency respectively (see Table 3).

In the same way, some other inter- and intra-disciplinary similarities were also observed. Table 4 shows that dissertation writers from Arts and Humanities used attributive adjectives, nominalizations, premodifying nouns, of genitives and prepositional phrases (after nouns) in second, third, fourth, fifth and sixth highest frequency respectively. Similarly, dissertation writers from Life Sciences discipline maintained the same order of second, third, fourth, fifth and sixth highest frequency as Arts and Humanities. In this way, Pakistani doctoral level, again seems to differ from the principle of variation in the use of phrasal features across the disciplines.

**Table 4**
**Comparison of Phrasal Features in across the Disciplines**

| Phrasal Features | Frequencies in Arts and Humanities | Frequencies in Life Sciences |
|---|---|---|
| Nouns | 338151 | 161129 |
| Attributive adjectives | 61260 | 26474 |
| Premodifying nouns | 48396 | 29121 |
| Nominalizations | 49783 | 21485 |
| *of* genitives | 21219 | 10732 |
| Prepositional phrases | 19860 | 6796 |
| Grand Total | 538669 | 255737 |

Thus, the results show that Pakistani L2 AW across the two academic disciplines also shows (inter-, and intra-disciplinary) similarities (in terms of the first, second, third, fourth, fifth and sixth highest frequency of the phrasal features). The only difference (in the use of the said features) that can be seen in this research is the frequencies i.e. different features are used (both inter-, and intra-disciplinary) in different frequencies. It means that Pakistani AW reflects disciplinary variation only in frequencies of the use of phrasal features. Thus, these results are different from the results of past research (e.g. Crossley et al., 2017; Durrant, 2017; Elliott, 2019; Gray, 2015; Karakaya, 2017; Staples et al. 2016; Ward, 2007) that claims the existence of variation in the use of phrasal features across disciplines. In addition, these results seem to stand apart from the basic notion (see Bulté & Housen, 2012; Norris & Ortega, 2009) that syntactic complexity is considered to be a strong reference to diversity, richness and variety in the writing.

**Conclusion**

This research investigated disciplinary variation in the use of phrasal features in the corpus of Pakistani dissertation writers of English as an L2 across the two disciplines i.e. Arts and Humanities and Life Sciences. Results showed that the said dissertation writers used different phrasal features (i.e. nouns attributive adjectives, premodifying nouns, nominalizations, of genitives, and prepositional phrases) in different frequencies in different disciplines (both inter- and intra-disciplinary). However, the use of nouns was found to be the most frequent across the both disciplines. In addition, the order of first, second, third, fourth, fifth and sixth highest users of the phrasal features was also the same in both disciplines. In this way, Pakistani AW was found to show similarity in use of the said features reflecting variation only in terms of the frequency of uses of the phrasal features in both disciplines (inter- and intra-disciplinary). Therefore, this research concludes that Pakistani AW across Arts and Humanities and Life Sciences disciplines does not reflect significant variation that is considered to be a characteristic feature of L1 AW.

**References**

Abbott, A. (2001). *Chaos of disciplines.* Chicago and London: University of Chicago Press.

Ahmad, M. (n. d.). Phrasal complexity in Pakistani academic writing: A corpus–based comparative study of doctoral dissertations across disciplines (Doctoral Dissertation). Department of Applied Linguistics, Government College University, Faisalabad, Pakistan.

Becher, T., & Trowler, P. R. (2001). *Academic tribes and territories*. Buckingham: The Society for Research into Higher Education.

Biber, D. (2006). Stance in spoken and written university registers. *Journal of English for Academic Purposes, 5*(2), 97–116.

Biber, D., & Conrad, S. (2009). *Register, genre, and style.* Cambridge: Cambridge University Press.

Biber, D., Gray, B., & Poonpon, K. (2011). Should we use characteristics of conversation to measure grammatical complexity in L2 writing development? *TESOL Quarterly, 45*(1), 5–35.

Biber, D., & Gray, B. (2016). *Grammatical complexity in academic English: Linguistic change in writing*. Cambridge: Cambridge University Press.

Bulté, B., & Housen, A. (2012). Defining and operationalising L2 complexity. In A. Housen, F. Kuiken & I. Vedder (Eds.), *Dimensions of L2 Performance and Proficiency – Investigating Complexity, Accuracy and Fluency in SLA* (pp. 21–46). Amsterdam: John Benjamins.

Charles, M. (2003). 'This mystery: A corpus-based study of the use of nouns to construct stance in theses from two contrasting disciplines. *Journal of English for Academic Purposes, 2*(4), 313–326.

Crossley, S., Russell, D., Kyle, K., & Römer, U. (2017). Applying natural language processing tools to a student academic writing corpus: How large are disciplinary differences across science and engineering fields? *Journal of Writing Analytics, 1,* 48–81.

Durrant, P. (2017). Lexical bundles and disciplinary variation in university students' writing: Mapping the territories. *Applied Linguistics*, *38*(2), 165–193.

Elliott, T. (2019). *Variation in use of nouns as nominal premodifiers in advanced student writing across academic disciplines* (Master Thesis). Graduate faculty, Iowa State University, Ames, Iowa.

Gardner, S., Nesi, H., & Biber, D. (2018). Discipline, level, genre: Integrating situational perspectives in a new MD analysis of university student writing. *Applied Linguistics*, *40*(4), 646–674.

Gray, B. (2015). *Linguistic variation in research articles: When discipline tells only part of the story.* Amsterdam: John Benjamins Publishing Company.

Hyland, K. (1998). *Hedging in scientific research articles.* John Benjamins Publishing.

Hyland, K. (2006). *English for academic purposes: An advanced resource book.* Routledge.

Hyland, K. (2010). Constructing proximity: Relating to readers in popular and professional science. *Journal of English for Academic Purposes, 9*(2), 116–127.

Jalilifar, A., White, P., & Malekizadeh, N. (2017). Exploring nominalization in scientific textbooks: A cross-disciplinary study of hard and soft sciences. *International Journal of English Studies*, *17*(2), 1–20.

Karakaya, K. (2017). *A corpus–based and systemic functional analysis of syntactic complexity and nominal modification in academic writing* (Doctoral Dissertation). Iowa State University, Ames, Iowa, United States.

Krishnan, A. (2009). *What are academic disciplines? Some observations on the disciplinarity vs. interdisciplinarity debate*. UK: National Centre for Research Methods, University of Southampton.

Nesi, H., & Gardner, S. (2012). *Genres across the disciplines: Student writing in higher education*. Cambridge University Press.

Norris, J. M., & Ortega, L. (2009). Towards an organic approach to investigating CAF in instructed SLA: The case of complexity. *Applied Linguistics, 30*(4), 555–578.

Ortega, L. (2003). Syntactic complexity measures and their relationship to L2 proficiency: A research synthesis of college-level L2 writing. *Applied Linguistics*, *24*(4), 492–518.

Russell, D. R. (2002). *Writing in the academic disciplines: A curricular history.* Carbondale: Southern Illinois University Press.

Staples, S., Egbert, J., Biber, D., & Gray, B. (2016). Academic writing development at the university level: Phrasal and clausal complexity across level of study, discipline, and genre. *Written Communication*, *33*(2), 149–183.

Ward, J. (2007). Collocation and technicality in EAP engineering. *Journal of English for Academic Purposes, 6*(1), 18–35.