Khazar Journal of Humanities and Social Sciences

Manuscript 1611

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ORIGINAL STUDY

Lexicogrammatical Specificities in L2 Academic Writing: An Across and Within Disciplinary Corpus Linguistic Study

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ABSTRACT

This corpus-based study investigated disciplinary specificities in the use of lexicogrammatical features in academic writing produced by the writers of English as a second language (L2) across and within disciplines. The corpus for this study was developed from the doctoral dissertation texts of four disciplinary groups across 16 disciplines and was analyzed systematically in AntConc after tagging with TagAnt and Multidimensional Analysis taggers. The corpus comprised 160 doctoral dissertations (10 per discipline, 40 per disciplinary group) totalling 3,613,190 words: arts and humanities (English, history, linguistics, philosophy), social sciences (economics, law, politics, sociology), life sciences (agriculture, biology, food sciences, psychology), and physical sciences (computer science, engineering, mathematics, physics). The results exhibited notable differences and similarities in the use of lexicogrammatical features in the academic writing across and within disciplines, echoing and extending the findings of the previous studies. The differences were observed against the expert disciplinary specificities. Therefore, the academic writers were advised to make appropriate use of lexicogrammatical features in accordance with the conventions of their respective disciplines. The results of this study have implications for the teachers, researchers, and students of English as a Second/Foreign language, syllabus designers, and language policy planners.

Keywords: Academic writing, Corpus linguistic study, Disciplinary specificities, Expert convention in academic writing, Lexicogrammatical features

Received 29 July 2026; revised 8 October 2026; accepted 11 October 2026.
Available online 15 October 2026

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https://doi.org/10.5782/2223-2621.1611
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Introduction

Writing

Writing is "a specific type of communicative language use" that is "realised through the production of orthographically constituted text" (Durrant, Brenchley, and McCallum, 2021: 14). It enables a person to argue opinions, articulate ideas, and synthesize multiple viewpoints to communicate persuasively with colleagues, peers, teachers, and so on (Crowhurst, 1990). It is critically important for the success of professionals in different situations (McNamara, Crossley, and McCarthy, 2010). For example, professionals require good writing skills not only for their day-to-day work but also critically for their entry and promotion (Light, 2001). Good writing is that which ensures sentence, paragraph, and whole-text construction in accordance with the conventions of the language, particularly English (Raitskaya and Tikhonova, 2020). It is a ubiquitous feature of academic life. Therefore, the ability to compose academic texts accurately and fluently using appropriate language is important in this context (Hyland, 2023; Martínez, 2023). Thus, the focus of this study is academic writing (AW).

Academic writing

Since writing means communicating through words (Durrant, Brenchley, and McCallum, 2021; Strongman, 2013), the term AW refers to the careful use of words to convey ideas to multiple readers and audiences (Strongman, 2013). It is one of the most investigated registers of the English language (Biber and Gray, 2016). It is unique in its nature (Singh and Lukkarila, 2017) and has individual characteristics. For example, it is "formal, precise, purposeful, and objective" (Johnson, 2016: 35). In addition, it is clear, focused, impersonal, logical, technical, and well-organized (Chauhan, 2022; Osmond, 2016). For Johnson (2016), AW refers to writing used in college- and university-level courses. This study focuses on the university-level AW. The reason for this focus is that university-level AW is the primary means by which university-level students not only demonstrate their knowledge but also are evaluated on their understanding of their field (Hyland, 2023).

Furthermore, university-level AW is used as a formal written register in academic publications and educational institutions, important for researchers for earning credibility in their professions, main source of knowledge circulation across academic disciplines (Gray, 2015; Hernandez, 2022), and vital component of the student success characterizing linguistic competence (Charnchairerk, 2022; Chauhan, 2022; Gardner, Nesi, and Biber, 2018; Hyland, 2002; Krashen, 1982; Zhu, 2004). Thus, AW has emerged "almost as an independent discipline in applied linguistics, or at least as a research-led sub-discipline in English for Academic purposes" (Schmied, 2011: 1), and has become the main means of communication for scholars of various subjects in different disciplines (Jalilifar, Kaidan, and Don, 2018). Therefore, AW from a wide array of 16 subjects of four academic disciplinary groups (Table 1) is the focus of this study.

Academic writing features

AW is characterized by unique features. In other words, AW is a form of writing in which certain words, and grammatical structures are strongly favoured (Halliday and Martin, 1993), that is, AW makes ubiquitous use of adjectives, nouns, and phrasal features functioning as noun modifiers (Ansarifar, Shahriari, and Pishghadam, 2018; Banks, 2008;

Table 1. Frequency of lexicogrammatical features within-, and –across disciplines (raw frequencies).

DISCIPLINARY GROUP	ARTS AND HUMANITIES				SOCIAL SCIENCES			LIFE SCIENCES				PHYSICAL SCIENCES					
Discipline	English	History	Linguistics	Philosophy	Economics	Law	Politics	Sociology	Agriculture	Biology	Food Sci	Psychology	Computer	Engineering	Maths	Physics	TOTAL
Feature Types								**CLAUSAL FEATURES**									
Clausal Coordination Conjunction	1643	94	1578	121	128	1484	1031	672	145	248	136	127	252	350	145	216	8370
Finite adverbial clause	588	6	402	22	13	248	120	90	18	24	17	57	34	46	18	34	1737
Verb + that clause	60	0	66	4	15	94	54	51	20	14	13	32	9	2	20	29	483
WH complement clause	49	0	45	0	8	26	21	9	8	7	2	10	16	9	8	10	228
								INTERMEDIATE FEATURES									
Adverbs	1042	54	1035	73	110	867	715	531	120	162	94	135	176	277	120	177	5688
Desire verbs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extraposed adjectives + that clauses	32	0	26	1	2	36	6	8	6	2	3	0	3	3	6	9	143
Linking adverbials	3025	129	3287	251	709	3060	1903	1392	589	634	523	650	871	641	589	1027	19280
Noun + that clauses	607	10	526	30	25	386	208	103	27	41	25	49	82	62	27	60	2268
Noun + to clauses	2589	87	2419	190	347	2756	1878	1067	394	302	246	329	549	460	394	359	14366
Passive nonfinite relative clause	839	43	898	80	200	1321	654	649	236	364	314	171	315	306	236	371	6997
Passive voice verbs	19	1	12	0	3	41	15	18	4	1	5	2	2	7	4	2	136
Raising structures / Extraposed adjectives + to clauses	4	1	3	0	0	1	1	0	0	0	0	0	0	0	0	0	10
That relative clauses	2282	48	1966	119	171	1461	923	562	219	258	145	304	393	175	219	234	9479
Verb + ing clauses	210	3	146	9	66	95	193	88	77	66	68	29	151	123	77	60	1461
Verb + to clauses	1223	10	1337	80	102	757	452	233	59	93	47	200	254	143	59	146	5195
WH relative clauses	283	5	199	18	15	206	87	75	26	28	9	22	32	56	26	49	1136
								PHRASAL FEATURES									
Attributive adjectives	28769	1696	28058	2737	5292	21112	17303	16769	5791	8560	6196	5927	7593	7153	5791	8696	177443
Nominalization	21434	1230	24158	2961	4842	28966	16884	15761	5681	5931	4837	5036	8179	6969	5681	6587	165137
Nouns	158977	9045	156660	13469	28532	135561	109199	98777	35315	50941	38485	36388	44825	39672	35315	42277	1033438
Of genitives	9825	688	9811	895	2259	9437	8882	6808	2629	3277	2712	2114	2692	1871	2629	2576	69105
Premodifying nouns	22726	1732	21860	2078	5416	20098	18705	16052	6717	10365	7838	4201	7521	7816	6717	7763	167605
Prepositional phrases	9344	707	9103	706	1664	9145	6191	5724	1766	2141	1513	1376	2374	2107	1766	2466	58093

Source: Ahmad (2022)

Biber, 1988; Biber and Gray, 2010, Biber and Gray, 2016; Biber et al., 1999; Gray, 2015; Halliday, 2004; Hernandez, 2022; Martínez, 2023; Ruan, 2018; Staples and Reppen, 2016; Taguchi, Crawford, and Wetzel, 2013; Wu, Mauranen, and Lei, 2020; Yin, Gao, and Lu, 2021). In addition, AW is characterized by the use of passive constructions (Afzaal et al., 2022; Biber, 1988; Ferris, 1994; Grant and Ginther, 2000; Hinkel, 2002; Staples et al., 2016). Building on these studies, the features in question are the subject of this study.

Disciplinary specificities

Although AW in different academic disciplines is commonly similar in purpose and structure, there is a key variation in morphology and lexis, that is, AW varies in the use of vocabulary and phraseology. This variation is due to the conventions of disciplinary communities (Hyland, 2009). A key reason for this variation is that the construction of discipline in AW is primarily influenced by social, cultural, and personal experiences and ideas, as well as institutional features (Hyland, 2006). Some of the past studies (e.g., Ahmad, 2012; González, 2019; He and Yang, 2018; Jalilifar, Alipour, and Parsa, 2014, Jalilifar, White, and Malekizadeh, 2017; Marr and Mahmood, 2021) investigated nominalization features to explore disciplinary specificities in the AW. The results of these studies demonstrated that nominalizations are not sensitive in the AW across disciplines. Results of some of these studies (Ahmad, 2012; He and Yang, 2018; Jalilifar, Alipour, and Parsa, 2014, Jalilifar, White, and Malekizadeh, 2017) revealed no significant variations in the use of nominalization features in AW across disciplines, whereas Ahmad (2012) particularly regarded nominalization as a universal and technical feature of AW. However, the results of numerous studies suggest something contradictory to these findings.

For example, Parry (1998: 297) examined AW produced by the doctoral students to explore disciplinary differences, focusing on citation, language, and structure practices. Her data comprised 24 dissertations from three disciplines: humanities, science, and social science (eight dissertations from each discipline). By and large, the results suggested differences across disciplines. That is, the humanities, science, and social science disciplines were observed to be situated within individualistic or intellectual, established, and coexisting yet competing paradigms, respectively. In addition, the results suggested some overlapping of certain features across disciplines. Therefore, the dissertation texts from the said disciplines were classified as “argument with recounting and narrative” (humanities), “explanation and argument” (social sciences), and “report and explanation” (sciences). Tian and Zhang (2023) also explored cross-disciplinary variations in the use of the different types of nominalizations and their functions in the AW, comprising 50 abstracts from linguistics and 108 abstracts from shipbuilding and oceanography engineering. The results showed significant variation in the use of nominalizations in the AW across disciplines, indicating disciplinary differences in the AW. Another study (Dong, Wang, and Buckingham, 2023) investigated disciplinary differences in syntactic features in the corpus of British Academic Written English (BAWE), comprising student-written academic texts from 31 disciplines across four disciplinary divisions. The results from qualitative and quantitative analyses revealed statistically significant differences in coordination, length, phrasal sophistication, and subordination features. These results had important pedagogical implications (see Ishikawa, 2024; Niamadpour and Jalilifar, 2024). Therefore, changes in classroom instruction and curriculum design were suggested to cultivate discipline-specific academic literacy in the students (Xiao and Zhao, 2026).

Some empirical studies investigated cross-disciplinary differences in syntactic structures in the AW. A noteworthy study in this regard is Gray (2015), which investigated the linguistic features of the AW in research articles across academic disciplines and reported

differences within and across disciplines. Differences across disciplines entailed variations in the organizational patterns of the research articles. For example, qualitative articles featured highly descriptive headings and varied organizational patterns. In contrast, quantitative articles contained standard headings following the introduction, methods, results, and discussion (IMRD) organizational pattern. This thorough description of the organizational patterns of research articles facilitated well-grounded functional analyses of the linguistic features. On the other hand, differences across disciplines were related to the types of research articles published in each discipline. For example, qualitative articles in applied linguistics relied less on passive constructions than quantitative articles did. This finding was rendered important specifically for investigating within-disciplinary differences in future AW research. These results offer important implications for future corpus-based studies on disciplinary differences in AW. The strength of this study lies in its corpus, which comprises 270 research articles retrieved from 56 journals across the six academic disciplines. Such a balanced corpus enabled representative comparison among six disciplines.

Gray (2015) was followed by another empirical study (Staples et al., 2016) that investigated AW comprising assignments written by university students. The results obtained through corpus-based and statistical analyses showed different uses of the lexicogrammatical features, that is, clausal, intermediate, and phrasal features across four disciplinary divisions. The results revealed that the arts and humanities and the social sciences frequently use clausal features (e.g., finite clauses), whereas the life sciences and the physical sciences frequently use nominal phrases (see Section 3.1 also). These results indicated differences within and across disciplines and genres, and suggested implications for the curriculum designers. The strength of this study lies in investigating how novice writers develop in the production of complex language over time, using a wide array of lexicogrammatical features, and considering the influence of genre, discipline, and level of education to study patterns of development and disciplinary differences in the AW.

Working along lines partly similar to Gray (2015), Casal et al. (2021) investigated length, clausal, and phrasal features in research articles to explore within- and across-disciplinary differences. The corpus for this study comprised complete texts of 240 research articles from three academic disciplines: applied linguistics, economics, and psychology. The analysis was conducted using a syntactic complexity analyzer, and the results were compared using ANOVA and MANOVA. The results showed significant differences both within and across disciplines. Applied linguistics and economics were found to be syntactically the most and least complex, respectively, particularly in terms of clause, sentence mean length, and T-Unit. These findings had important implications for pedagogy and EAP research (Sfeir, 2025; Pang, Jiang, and Dong, 2026). Still another study (Lu et al., 2021) investigated disciplinary specificities in the relationship between rhetorical move steps and syntactic complexity features in the AW. The corpus comprised 400 introduction sections of research articles from four disciplines: two from the social sciences (i.e., anthropology and sociology) and two from engineering (i.e., chemical engineering and electrical engineering). The results demonstrated significant differences in the syntactic complexity of sentences that realize different rhetorical move steps commonly found in the introduction section of research articles. These results contributed to a better understanding of disciplinary differences in form-function mapping in research article writing and had important implications for genre-based AW pedagogy and research. A recent study (Ziaeian and Golparvar, 2022) used fine-grained clausal and phrasal measures to investigate syntactic complexity in the AW from three disciplines (i.e., applied linguistics, chemistry, and economics). Additionally, two groups of writers of English as a first (L1) and second (L2) language were compared on clausal and phrasal measures. The results showed significant differences in

the use of clausal and phrasal complexity measures across the three disciplines. That is, phrasal (e.g., dependents per nominals) and clausal (e.g., dependents per clause) measures were frequent in chemistry, applied linguistics, and economics, respectively. These results have important implications for AW pedagogy and research. The strength of this study lies in the corpus that was developed from both L1 and L2 research articles.

These studies (Casal et al., 2021; Dong, Wang, and Buckingham, 2023; Gray, 2015; Lu et al., 2021; Parry, 1998; Staples et al., 2016; Tian and Zhang, 2023; Ziaeian and Golparvar, 2022) add to our knowledge and enhance our understanding of the disciplinary differences in research articles in particular, and the AW in general. In addition, these studies motivate future researchers to comprehensively examine cross-disciplinary specificities in the AW, particularly in registers other than research articles, across a wider range of academic disciplines and syntactic features.

The present study

This study investigates disciplinary specificities in L2 AW. A good number of previous studies (see Biber and Gray, 2016; Gray, 2015; Halliday and Martin, 1993; Hutter, 2015; Hyland, 2006, Hyland, 2007, Hyland, 2008, Hyland, 2009; Hyland and Jiang, 2017; Staples et al., 2016) examined AW produced by the writers of English as an L1 embarking on the notion that academic registers differ in the use of grammatical features in accordance with the tradition of a particular discipline they belong to. Different academic disciplines use grammatical features in different ways (Gray, 2015; Hyland, 2006). Flowerdew (2012: 307) calls this practice "situated characteristic" and accentuates that the said characteristic is common among the members of different disciplinary discourse communities. The reason for this practice is that the language use of members of different discourse communities differs owing to differences in their academic principles, knowledge production, research culture, and writing practices (Hyland, 2006, Hyland, 2007, Hyland, 2008, Hyland, 2009; Johnson, 2025).

Keeping the model studies (Biber and Gray, 2016; Gray, 2015; Halliday and Martin, 1993, Halliday, 1996; Hutter, 2015; Hyland, 2006, Hyland, 2007, Hyland, 2008, Hyland, 2009; Hyland and Jiang, 2017) in view, a considerable number of studies examined L2 AW. Some of these studies are reviewed in Section 1.4. However, some studies are still noteworthy. One such study is Ansarifar, Shahriari, and Pishghadam (2018), which examined the AW composed by the Persian writers of English as an L2. The corpus for this study was prepared from the abstracts of 99 master's and 64 doctoral dissertations written by Persian students of English as an L2, and 149 research articles written by expert writers of English. The authors defined expert writers as those who published their papers in international peer-reviewed journals. Corpus-based analysis of the use of 16 lexicogrammatical features presented interesting findings. That is, master's-level student writers differed significantly from expert writers in their use of phrasal modification structures. In comparison, the doctoral level student writers differed less from the expert writers. Similar findings were reported by Yin, Gao, and Lu (2021). Similarly, Önem (2026) reported differences in the rhetorical moves of research abstracts written by Ph.D. students in Turkish and English, which were attributed to discipline, language proficiency, and writing conventions. The findings of these studies are important for this study for a number of reasons: they add to our knowledge of differences in the use of lexicogrammatical features across different levels of education. Secondly, the findings of Ansarifar, Shahriari, and Pishghadam (2018) enhance our understanding that doctoral-level students follow the expert tradition in the use of lexicogrammatical features in the AW. Recently, Ahmad et al. (2024) revealed that the advanced L2 academic writers exhibit linguistic variation in the use of syntactic

features which motivated this present research to conduct a corpus-based study for the comprehensive understanding of the academic writing practices.

Some of the studies presented a comparative examination between L1 and L2 AWs. For example, Ruan (2018) conducted a comparative study to explore differences in the AW produced by the native and non-native (Chinese) academic writers of English. The corpus for this study was developed from the abstracts of 200 research articles published in the UK, US, and Chinese journals related to applied linguistics. The results revealed differences in the use of complex and simple noun phrases between native and non-native English writers. That is, the native writers were found to rely heavily on simple noun phrases. In contrast, the non-native writers were observed to rely heavily on complex noun phrases. This difference was attributed to L1 transfer to L2 AW. Even though it has limitations, such as a small corpus consisting only of research article abstracts from the applied linguistics discipline, this study is important for providing comparative analyses between L1 and L2 AWs and most particularly for reporting useful findings related to the differences in the use of lexicogrammatical features by L1 and L2 writers for future research. Another noteworthy study in this context is Wu, Mauranen, and Lei (2020), which investigated linguistic features in AW produced by the native (American) and ELF (English as a Lingua Franca) writers. The corpus comprising research articles was collected from the Corpus of Contemporary American English (representing American English), and SciELF (representing ELF) platforms. The analyses were carried out utilizing corpus-based and statistical procedures. The results revealed ELF writers employing longer sentences, T-units, and coordinate constructions in the AW than their American counterparts. This study is also important because it offers useful insights to describe the emerging use of ELF in the AW.

The studies reviewed in Sections 1.4 and 1.5 help us understand that AW is characterized by disciplinary differences owing to the use of discipline-specific grammatical features that cause disciplinary specificities. Therefore, this study aims to explore disciplinary specificities in the AW produced by the Pakistani academic writers of English as a Second Language. Previously, a number of studies (Ahmad, Mahmood, and Siddique, 2019, Ahmad, 2022, Ahmad, Mahmood, and Siddique, 2023a, Ahmad, Mahmood, and Siddique, 2023b, Ahmad et al., 2024) examined disciplinary specificities. However, these studies were limited to a small corpus size, insufficient grammatical features, a small number of disciplines, and disciplinary divisions. So, the gap to comprehensively examine AW from a wide range of academic disciplines using a large number of lexicogrammatical features produced by the Pakistani student-writers still exists. Furthermore, previous studies investigated disciplinary differences across disciplines only. So, there is still a room for investigating within disciplinary differences. Therefore, this study examines Pakistani AW from 16 academic disciplines related to four disciplinary divisions (Table 1) using a large number of lexicogrammatical features (Table 1) introduced in Staples et al. (2016) to explore across-, and within-disciplinary differences to determine disciplinary specificities in Pakistani AW.

Research methodology

Research design

This is a corpus-based study that examines AW produced by the Pakistani academic writers of English as an L2. This adoption aligns with the tradition of recent studies (Afzaal et al., 2022; Ahmad, Mahmood, and Siddique, 2023, Ahmad et al., 2024, Ahmad, Mahmood, and Siddique, 2025; Akhter and Shah, 2024; Afzaal et al., 2026).

Research corpus

Corpus for this study comprised doctoral dissertation texts written by the Pakistani students that were retrieved from Pakistan Research Repository. The Pakistan Research Repository is an online database that contains dissertations written by Pakistani Masters, and doctoral-level students for open access. The corpus comprised 160 doctoral dissertations, ten from each of the 16 disciplines (i.e., 40 from each disciplinary group), totalling 3,613,190 words: arts and humanities (English, history, linguistics, philosophy) 1,138,455 words; social sciences (economics, law, politics, sociology) 1,247,972 words; life sciences (agriculture, biology, food sciences, psychology) 768,443 words; and physical sciences (computer science, engineering, mathematics, physics) 458,320 words.

Corpus development

Corpus development for this study involved five steps. At the first step the dissertations were downloaded in Portable Document Format (PDF). At the second step, the PDF copies were converted into the MS Word format utilizing ILovePDF-an online available software for open access. At the next step, the data in MS Word format was processed for cleansing. In this regard, preliminary pages, headings, tables, figures, images, references, and appendices were removed. At the fourth step, the cleansed data was saved in Notepad format that was essential for processing in corpus software (see 2.5) to carry the analysis process. Last of all, Notepad files were named and organized into separated folders as per disciplinary divisions. BatchRenamer, another online open access tool, was used for this purpose.

Lexicogrammatical features

This study used different types of phrasal, clausal, and intermediate features (Table 1) to explore disciplinary specificities in Pakistani AW. These features were adapted from Staples et al. (2016).

Corpus analysis

The corpus of this study was analyzed utilizing online open access software, that is, AntConc. A limitation of this software is that it does not facilitate the direct processing of the corpus for some features. Therefore, two taggers namely Multidimensional Analysis Tagger (MAT), and TagAnt were utilized. Then the lexicogrammatical features (Table 1) were explored in the AntConc. In this process different formulaic patterns, that were introduced in a doctoral study (Ahmad, 2022) from which this study has been extracted), were utilized. For example, the formulaic pattern *_DT *_JJ *_NN was applied to search attributive adjectives describing determiner (DT), adjective (JJ), and noun (NN). This process facilitated in obtaining frequencies, and examples of different features that were saved in a separate file called results (Table 1). This process is visually represented in Fig. 1.

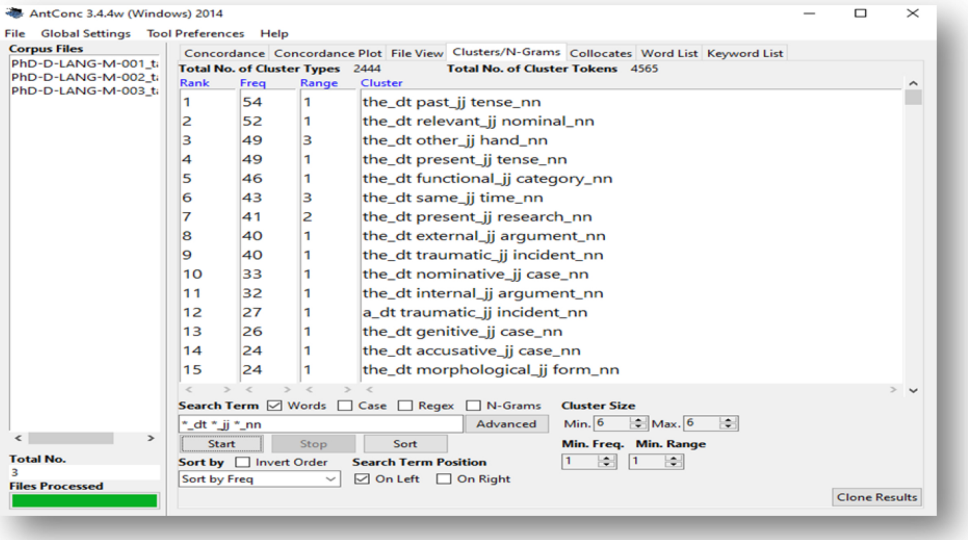


Fig. 1. Visual representation of the corpus analysis process employed in the study.

Results and discussion

This study investigated within-, and across-disciplinary specificities in AW produced by the Pakistani doctoral-level students of English as an L2. The results obtained through corpus-based analysis are presented and discussed below.

The results are organized around the three types of lexicogrammatical features: clausal (Section 3.1), phrasal (Section 3.2), and intermediate (Section 3.3). Table 1 reports the raw frequencies of the 23 features in each of the 16 disciplines, grouped by disciplinary group (arts and humanities, social sciences, life sciences, and physical sciences), alongwith the total for each feature. Fig. 2 complements Table 1 by plotting, for each discipline, one representative feature of each type: clausal coordinating conjunctions (clausal), adverbs (intermediate), and attributive adjectives (phrasal). Each subsection describes the results for the four disciplinary groups and, where possible, summarizes the across-disciplinary pattern. Section 3.3 closes by comparing the overall pattern with the expert disciplinary practice reported in earlier studies.

Disciplinary specificity in the use of clausal features

This subsection builds on the clausal rows of Table 1 and the blue bars of Fig. 2. The results (Table 1 and Fig. 2) showed varied use of the clausal features in the AW in arts and humanities disciplines. Out of the four types of clausal features, clausal coordinating conjunctions were observed in the trend use of the academic writers in arts and humanities showing highest (1643), and lowest (94) use in English and history. In contrast, WH complement clauses were observed in the least frequent use being 0 in history, and philosophy disciplines. In addition, verb + that clause was observed in 0 frequency in history. Other types of the clausal features, that is, finite adverbial clause, and verb + that clause were observed in the second, and third level highest frequency. The finite adverbial clause was observed in English in the highest (588), and history in the lowest (6) frequency. These

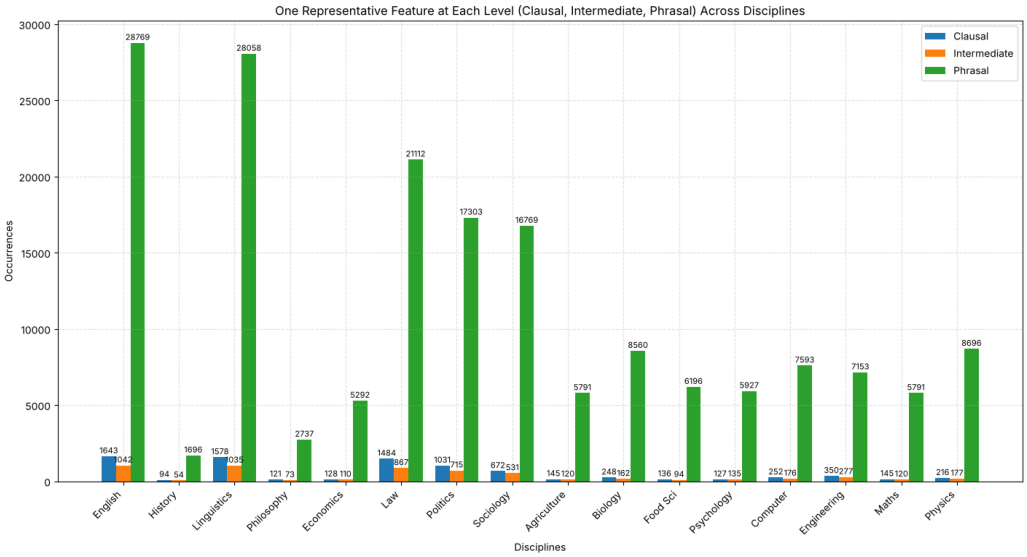


Fig. 2. Frequency of one representative feature of each type, clausal coordinating conjunctions (clausal, blue), adverbs (intermediate, orange), and attributive adjectives (phrasal, green), across the 16 disciplines. Disciplines are grouped by disciplinary group: arts and humanities (English to philosophy), social sciences (economics to sociology), life sciences (agriculture to psychology), and physical sciences (computer to physics).

results indicated disciplinary specificities marking clausal coordinating conjunctions as the feature associated with AW in arts and humanities specifically in English more than the AW in other disciplines in arts and humanities (i.e., history, linguistics, and philosophy). On the other hand, these results indicated WH complement clause as the less commonly used clausal feature in the AW in arts and humanities.

Similar results were observed in the use of clausal features in the AW in social sciences. That is, clausal coordinating conjunctions were observed in the highest, and WH complement clauses were observed in the lowest frequent use. However, the use of these features showed variations related to the frequency. Furthermore, all the four types of the clausal features (i.e., clausal coordinating conjunctions, finite adverbial clause, verb + that clause, and WH complement clause) were observed specifying law discipline in social sciences followed by the politics, sociology, and economics. Thus, these results indicated the association of clausal coordination with the AW in social sciences.

The results (Table 1 and Fig. 2) related to the use of clausal features in the AW in life sciences also showed clausal coordinating conjunctions in the trend use being highest in biology (248), and lowest in psychology (127). Similar trend use of these features (i.e., clausal coordinating conjunctions) was observed in physical sciences being highest in engineering (350) and lowest in maths (145). Furthermore, the results showed WH complement clause being less common in the AW in physical sciences.

These results indicated clausal coordinating conjunctions specifying Pakistani AW across disciplines with variation of the frequency. Overall, clausal features (particularly clausal coordinating conjunction) specified AW in arts and humanities the most followed by the AW in social sciences, physical sciences, and life sciences respectively. These results also indicated within-disciplinary specificities. For example, the clausal coordinating conjunctions specified English (arts and humanities), law (social sciences), biology (life sciences), and engineering (physical sciences).

Disciplinary specificity in the use of phrasal features

This subsection builds on the phrasal rows of Table 1 and the green bars of Fig. 2. Six types of the phrasal features (Table 1) were explored in this study to see the specificity of the said features within-, and across-disciplines. The results (Table 1 and Fig. 2) show the nouns specifying Pakistani AW within-, and across-disciplines due to the frequent use of this feature. In contrast, the results revealed prepositional phrases as the least specifying features of the AW across disciplines except history (arts and humanities), and engineering (physical sciences). The writers in history, and engineering used 'of genitive' as the least specifying features.

However, the use of other phrasal features revealed interesting trends. That is, 'attributive adjective' was observed in English, and linguistics (arts and humanities), sociology (social sciences), psychology (life sciences), and physics (physical sciences) in the second highest trend use showing the third highest trend use in history, and philosophy (arts and humanities), economics, law, and politics (social sciences), agriculture, biology, and food sciences (life sciences), and computer, engineering, and maths (physical sciences). Thus, attributive adjective in Pakistani AW was observed specifying five disciplines in the second, and 11 disciplines in the third highest use.

Nominalization, another phrasal feature, was observed in the second highest use in three disciplines only, that is, philosophy (arts and humanities), law (social sciences), and computer (physical sciences). The use of these features was observed in the third highest use in linguistics (arts and humanities), and psychology (life sciences) showing the fourth highest use in the remaining disciplines, that is, English, and history (arts and humanities), economics, politics, and sociology (social sciences), agriculture, biology, and food sciences (life sciences), and engineering, maths, and physics (physical sciences). In this way, nominalization was found specifying most of the disciplines at the fourth highest trend.

Of genitive was observed (Table 1) specifying AW across academic disciplines (14 in total) in the fifth highest use except history (arts and humanities), and engineering (physical sciences) in which the said feature specified in the sixth highest use.

Similarly, the use of premodifying nouns in the Pakistani AW was also interesting. The results (Table 1) showed these features specifying: history, economics, politics, agriculture, biology, food sciences, engineering, and maths in the second; English, sociology, and physics in the third; and linguistics, philosophy, law, psychology, and computer in the fourth highest trend. These results indicated varied specificities in the use of premodifying nouns in the Pakistani AW across disciplines.

Disciplinary specificity in the use of intermediate features

This subsection builds on the intermediate rows of Table 1 and the orange bars of Fig. 2 which show the frequency of adverbs. Of the 13 types of intermediate features (Table 1), 'linking adverbial' is observed to specify Pakistani AW the most due to the frequent use by the academic writers across disciplines. However, its use varied both within-, and across-disciplines. The highest use of this feature was observed in social sciences being 709, 3060, 1903, and 1392 in economics, law, politics, and sociology respectively followed the arts and humanities occurring 3025, 129, 3287, 251 times in English, history, linguistics, and philosophy respectively.

After linking adverbial, noun + to clause, that relative clause, non-finite relative clause, adverbs, and verb + to clause were observed in the second, third, fourth, fifth, and sixth highest use respectively. However, the occurrence of these features varied across-,

and within-disciplines. In comparison, desire verbs, raising structures, extraposed adjective + that clauses, and passive voice verbs were observed in less frequent use with variations both within-, and across-disciplines.

These results (described in 3.1, 3.2, and 3.3) indicated the presence of all the three types of lexicogrammatical features (Table 1 and Fig. 2) in Pakistani AW showing phrasal, intermediate, and clausal features in the first, second, and third highest use respectively. However, the use of these features varied within-, and across-disciplines. For example, nouns were observed most frequently in the AW in social sciences followed by the AW in arts and humanities, physical sciences, and life sciences respectively. These results suggested disciplinary specificities in use of the said features (Brown, Hashimoto, and Brown, 2026). These findings also corroborate with Ahmad et al. (2024) which reports variation in the use of syntactic features in academic writing. Additionally, these findings support the evidence reported in Mahmood et al. (2026) which claims that syntactic complexity is an important feature of academic writing, and involves implications for writing pedagogy. However, it is important to see the practices in the expert disciplinary communities to determine the appropriateness of the disciplinary specificities in the Pakistani AW.

In this regard, we refer to a study (Gray, 2015) that investigated complexity (phrasal), and elaboration (clausal) features in the AW across six academic disciplines. The results of this study (Gray, 2015) indicated the AW heavily relying on the phrasal features, and showed specifically frequent use of the phrasal features in the science disciplines. However, the results (Table 1 and Fig. 2) of this present study revealed the frequent use of these features in social sciences followed by the arts and humanities, that is, Pakistani AW in sciences (i.e., life, and physical sciences) relies less on the phrasal features than the AW in social sciences. Furthermore, Gray (2015) found less reliance of the AW on clausal features. To this point, Pakistani AW is observed following expert practice, that is, results (Table 1 and Fig. 2) show less frequent use of the clausal features compared to the phrasal ones. However, the results (Table 1 and Fig. 2) also revealed the frequent use of phrasal features in social sciences, and arts and humanities which indicated deviation from the expert practices of the disciplinary communities. Similarly, another study (Staples et al., 2016) conducted a detailed analysis of the lexicogrammatical features in the AW across four disciplinary divisions (i.e., arts and humanities, life sciences, physical sciences, and social sciences). Findings in Staples et al. (2016) revealed the use of clausal features (e.g., finite clauses) more in arts and humanities followed by social sciences, and phrasal features in life, and physical sciences. The results (Table 1 and Fig. 2) of this present study again deviated from the expert practice of the disciplinary communities using phrasal features in social sciences. However, Pakistani AW showed deviation from the expert trend by making higher use of the finite clauses in arts and humanities. This deviation might be the result of language differences. That is, the present study was conducted on AW produced by the writers of English as an L2, whereas the studies (Gray, 2015; Staples et al., 2016) focused AW produced by the writers of English as an L1.

A recent study (Ziaeian and Golparvar, 2022) investigated clausal, and phrasal features in the AW in applied linguistics (arts and humanities), economics (social sciences), and chemistry (sciences) and found that the AW in chemistry frequently contained dependents per nominals (phrasal features). In contrast, the AW in applied linguistics, and economics frequently contained dependents per clause (clausal features). Our results (Table 1 and Fig. 2) showed Pakistani AW in social sciences frequently containing phrasal features than the AW in sciences. These results also showed deviations from the expert practice. However, these results also showed clausal features being more common in arts and humanities, and social sciences, and less common in sciences that indicated alignment with the expert practice.

Results of another recent cross-disciplinary study (Dong, Wang, and Buckingham, 2023) displayed student AW in arts and humanities, and social sciences containing higher syntactic complexity in length, overall sentence complexity, phrasal sophistication, and subordination than the AW in life sciences, and physical sciences. Additionally, the results displayed the AW in life sciences, and social sciences containing coordinating structures more than the AW in arts and humanities, and physical sciences. Furthermore, the results related to the within-disciplinary specificities revealed some of the disciplines (e.g., linguistics) aligning generally with conventions of the disciplinary community (i.e., arts and humanities) and other disciplines (e.g., computer sciences) deviating from the conventions of the disciplinary community (i.e., physical sciences). The results (Table 1) of our study showed both alignments with, and deviations from the practices of disciplinary communities (Pang, Jiang, and Dong, 2026). The alignments were observed in the use of clausal features across disciplines, that is, AW in arts and humanities contained clausal features more than the AW in life, and physical sciences. In addition, within-disciplinary alignments were also observed. For example, AW in linguistics, and English (arts and humanities), politics, law, and sociology (social sciences), agriculture, biology, food sciences, and psychology (life sciences), and maths, and physics (physical sciences) showed alignments following the practice of disciplinary communities by making frequent use of clausal features in the AW in arts and humanities, and social sciences, and less use of the same features in the AW in life, and physical sciences. Whereas, the deviations were observed in the use of phrasal features across disciplines, that is, AW in social sciences followed by the arts and humanities used phrasal features more than the AW in life, and physical sciences. In addition to these cross-disciplinary deviations, within-disciplinary deviations were also observed. For example, all of the disciplines in arts and humanities (i.e., linguistics, English, history, and philosophy), and social sciences (i.e., economics, law, politics, and sociology) frequently contained phrasal features. Thus, the results (Table 1 and Fig. 2) of our study exhibited notable differences, and similarities in the use of lexicogrammatical features in the AW across-, and within-disciplines echoing, and extending the findings of the previous studies (Casal et al., 2021; Dong, Wang, and Buckingham, 2023; Lu et al., 2021; Staples et al., 2016; Xiao and Zhao, 2026) on disciplinary specificities in AW.

Evidence from other registers of Pakistani English points in a similar direction. Akbar and Saba (2026) found Pakistani texts (crime reportage) to be more informational, explicit, and abstract than British ones; Siddique, Ahmad, and Akhter (2025) reported increasing lexical density and nominalization in Pakistani English sports news between 1995 and 2021; and Raza, Ahmad, and Zulfiqar (2026) found that the grammatical patterns of Pakistani news headlines, such as the use of the active voice, differed from those of international outlets. Alongwith other corpus-based research (e.g., Akhter and Shah, 2024) on Pakistani English newspapers, these studies suggest that the heavy reliance on nouns and nominal modification in the present corpus may partly reflect wider tendencies in Pakistani English that interact with disciplinary conventions.

AW in different academic contexts is governed by the common communicative purposes, and endorsed communicative conventions among the members of the disciplinary communities (Zhu, 2004). Furthermore, AW is viewed as a microcosm where the use of lexicogrammatical features varies from discipline to discipline (Biber and Gray, 2016). That is why the use of disciplinary-specific linguistic resources is an important aspect of the successful academic communication. For, culturally more appropriate research is likely more persuasive for the readers (Zhou, Li, and Lu, 2023). Therefore, reflecting disciplinary specificities in the AW has been favourably suggested (Shen et al., 2023). The deviation of disciplinary specificity in the Pakistani AW is seen against the conventions of the disciplinary communities. Therefore, Pakistani academic writers are suggested to

appropriately use the lexicogrammatical features as per the convention in their academic disciplines (Ahmad, Mahmood, and Siddique, 2023b). In this regard, following measures are proposed. To become a proficient writer in English, it is important to have a solid foundational knowledge of the AW (Chauhan, 2022). However, most of the students do not reach the university already equipped with the skills needed to meet the AW demands of the academic world (Kamaşak, Sahan, and Rose, 2021; Saricaoglu and Atak, 2022). Therefore, it is imperative to provide the students with essential (lexico)grammatical inputs as they progress from one academic level to another (Frempong, Kayi, and Ganu, 2023). Furthermore, recent development in artificial intelligence (see Imran, Almusharraf, and Dalbani, 2024) offer opportunities to enhance academic writing instruction through AI-assisted writing tools. Students' acceptance of generative AI for writing appears to depend largely on its perceived usefulness and ease of use (Ullah, Batool, and Irshad, 2026), and ChatGPT can provide immediate feedback that supports writing development, although greater learner autonomy may inadvertently lead to AI dependency (Abbasova and Salimli, 2026). This concern echoes Ali and Asad (2026), who address the overdependence on AI in academia, and it suggests that AI-enhanced tools, which have shown potential for skills such as pronunciation (Ali et al., 2023), should supplement rather than replace instruction in disciplinary conventions.

Most importantly, the findings need to be translated into classroom practice in ways that teachers can realistically implement. First, language teachers and subject teachers could jointly build small discipline-specific corpora (i.e., a few well-regarded dissertations or articles from the students' own field) and use free concordancing software such as AntConc to let students observe how features such as nominal modification, linking adverbials, and clausal coordination are used in expert writing in their discipline (Hyland, 2006; Sfeir, 2025). Second, the pattern observed here suggests where instruction may need to differ by field: students in the social sciences and arts and humanities, whose writing relied heavily on phrasal features, could be given tasks that practice varying the balance between nominal and clausal expression, whereas students in the life and physical sciences could be shown how experts in their fields compress information into noun phrases (Gray, 2015; Staples et al., 2016). Third, supervisors and writing instructors could give feedback on draft chapters using a short, shared checklist of the lexicogrammatical features typical of the discipline, so that comments on language are tied to disciplinary expectations and to faculty views of good writing in the field (Zhu, 2004). Technology-supported scaffolding and prompt feedback may help here: on the basis of teacher interviews and student surveys, Hadir, Mahmood, and Wakeel (2025) reported that digital scaffolding and quick feedback loops reduced writing errors among Pakistani school students, although their study was conducted at school level.

These suggestions should not be read as simple prescriptions. Discipline-specific instruction places considerable demands on teachers. Language teachers are rarely specialists in fields as different as law, biology, and engineering, and subject teachers may lack the metalanguage needed to explain why a lexicogrammatical choice works (see Hyland, 2002, on how specific EAP instruction should be). A realistic model is therefore collaboration, in which a language teacher and a subject specialist plan feedback together or co-teach short writing workshops, rather than expecting one teacher to cover 16 disciplines. Limited time, large classes, limited teacher training in corpus tools, and unequal access to technology may further constrain implementation, and institutions and policy planners need to address them. Moreover, a feature frequency in expert writing does not mean that more of it is better; students should not be encouraged to maximize noun density at the expense of clarity, and instruction should always be tied to the communicative purpose of the text. Because the present study compares Pakistani doctoral writing with expert practice

reported for other registers, these implications are provisional and should be confimed through classroom-based research.

Beyond the classroom, syllabus designers, and language policy planners should also design syllabi that facilitate appropriate development of language proficiency across different levels of education. Finally, researchers should raise awareness among teachers, students, policy makers, and syllabus designers about the importance of discipline specific use of lexicogrammatical features in AW.

Conclusion

This corpus-based study investigated disciplinary specificities in the use of lexicogrammatical features across-, and within- 16 disciplines of the four disciplinary groups. The results showed both alignments with, and deviations from the practices of disciplinary communities. In short, the clausal features aligned with expert practice, being more frequent in arts and humanities than in the life and physical sciences, whereas the phrasal features deviated from it, being more frequent in the social sciences and arts and humanities than in the life and physical sciences; this held both across and within disciplines (the discipline-by-discipline detail is given in Section 3). Thus, the results of our study exhibited notable differences, and similarities in the use of lexicogrammatical features in the AW across-, and within-disciplines echoing, and extending the findings of the previous studies.

The results of this study are both general and specific. The general implications are intended for researchers, policy makers, syllabus designers, and students and teachers of English as a second language. Specifically, the findings of this study will assist: (1) English as a second language instructors in preparing college students to produce expert writing such as AW, especially to meet the demands of specialized and discipline-specific writing at the advanced level of education (i.e., the university level); (2) L2 policy makers and syllabus designers should create curricula that support the proper development of AW at all educational levels; and (3) researchers should further investigate this field at various levels and in various genres, paying special attention to the significance of lexicogrammatical features for AW in Pakistani context. That is further expected to be useful in inviting the expert attention towards the use of noun lexicogrammatical features in L2 writing instruction, practice, curriculum, and research (Brown et al., 2026; Ishikawa, 2024; Sfeir, 2025; Pang, Jiang, and Dong, 2026). In addition, the said results might be useful for the Pakistani advanced level writers for knowing well about the features distinguishing their writing from the writing in other disciplines.

Limitations and recommendations

Limitations

Several limitations of this study should be acknowledged. First, the corpus was compiled exclusively from doctoral dissertations available in a single national repository, the Pakistan Research Repository, with ten dissertations per discipline. The findings therefore cannot be generalized to other genres (e.g., research articles, assignments, or master's theses), to dissertations held in other repositories or institutions, or to L2 writers in other contexts. Second, the study did not include a comparable corpus of L1 or expert writing; alignment with, and deviation from, expert practice were judged against findings reported in earlier studies (e.g., Gray, 2015; Staples et al., 2016) that analyzed different registers and corpora, so some of the deviations observed may reflect differences in genre and corpus

design rather than L2 status alone. Third, the results are presented as raw frequencies, and the four disciplinary groups differ in sub-corpus size (Section 2.2); comparisons across groups should therefore be interpreted with caution, and normalized frequencies (for example, per 10,000 words) would give a firmer basis for such comparisons. The analysis was also descriptive, with no inferential tests of the differences reported. Fourth, features were identified through automatic tagging (MAT and TagAnt) and formulaic search patterns in AntConc; as with any automatic procedure, residual tagging errors and the over- or under-counting of some features are possible. Finally, the study did not examine factors external to the texts, such as the the role of supervisors, editors, or digital writing tools in shaping dissertation language, or the way in which classroom interaction and power relations in Pakistani universities mediate writing instruction (Zahra, Bashir, and Zahra, 2026).

Recommendations

In view of these limitations, the following recommendations are made for future research. (a) Future studies should extend the corpus to other repositories, institutions, and genres (research articles, student assignments, and master's theses) and include more dissertations per discipline. (b) They should add L1 and expert-writer reference corpora of the same genre, so that deviations can be attributed to L2 status more confidently. (c) They should report normalized frequencies and apply inferential statistics to test the disciplinary differences. (d) Corpus evidence should be complemented with interviews with writers, supervisors, and subject teachers, and with longitudinal designs that follow the development of disciplinary writing. (e) Corpus-based evaluation of teaching materials, as undertaken for secondary school ESL textbooks could be extended to the EAP materials used in Pakistani universities, to examine how far they foreground the discipline-specific features identified here.

For teachers and syllabus designers, the discipline-specific, corpus-informed activities proposed in Section 3 should be piloted and evaluated through classroom-based action research supported by collaboration between language and subject teachers. For institutions and policy planners, teacher training in corpus tools and discipline-specific writing pedagogy should be provided. Finally, because AI writing tools are increasingly used by students, institutions should develop guidelines for their critical and supervised use, so that students benefit from them without the overdependence discussed by Ali and Asad (2026).

Conflict of interest

The authors declare no conflict of interest.

Funding statement

This research received no external funding.

Data availability

The data that support the findings of this study are available on request from the corresponding author.

Authors' contribution

All authors contributed equally.

AI usage statement

The authors declare that no generative artificial intelligence (AI) tools were used in the conception, writing, analysis, interpretation, or preparation of this manuscript.

References

Abbasova, M., & Salimli, E. (2026). Exploring ChatGPT's role in developing productive language skills: A systematic review. *Khazar Journal of Humanities and Social Sciences, 29*(2), 227–242. https://doi.org/10.5782/2223-2621.1597

Afzaal, M., Imran, M., Du, X., & Almusharraf, N. (2022). Automated and human interaction in written discourse: a contrastive parallel corpus-based investigation of metadiscourse features in machine-human translations. *Sage Open, 12*(4), 21582440221142210. https://doi.org/10.1177/21582440221142210

Afzaal, M., Jamali, A. B., Zehra, S. N., & Chaudhary, A. K. (2026). A corpus-based topic modelling and discourse analysis of Pakistan-Russia diplomatic discourses. *Khazar Journal of Humanities and Social Sciences, 29*(2), 136–153. https://doi.org/10.5782/2223-2621.1592

Ahmad, J. (2012). Stylistic features on scientific english: A study of scientific research articles. *English Language and Literature Studies, 2*(1), 47–55.

Ahmad, M., Mahmood, M. A., & Siddique, A. R. (2019). Organisational skills in academic writing: A study on coherence and cohesion in Pakistani research abstracts. *Languages*, *4*(4), 1–24. https://doi.org/10.3390/languages4040092

Ahmad, M. (2022). 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.

Ahmad, M., Mahmood, M. A., & Siddique, A. R. (2023). Variation in academic writing: A corpus-based research on syntactic features across four disciplinary divisions. *Novitas-ROYAL*, *17*(2), 50–65. https://doi.org/10.5281/zenodo.10015816

Ahmad, M., Mahmood, M. A., Siddique, A. R., Imran, M., & Almusharraf, N. (2024). Variation in academic writing: A corpus-based investigation on the use of syntactic features by advanced L2 academic writers. *Journal of Language and Education, 10*(3), 25–39. https://doi.org/10.17323/jle.2024.21618

Ahmad, M., Mahmood, M. A., & Siddique, A. R. (2025). Determining the L2 academic writing development stage: A corpus-based research on doctoral dissertations. *International Review of Applied Linguistics in Language Teaching*, *63*(1), 413–431. https://doi.org/10.1515/iral-2023-0028

Akbar, M., & Saba, N. (2026). Linguistic variation in Pakistani and British crime press reportage: A multidimensional analysis. *Linguistic Forum, 8*(1), 1–20. https://linguisticforum.com/index.php/ling/article/view/311

Akhter, N., & Shah, S. K. (2024). An analysis of how women's rights are framed in Pakistani English newspapers: A corpus-based discourse study. *Linguistic Forum, 6*(4), 60–78. https://linguisticforum.com/index.php/ling/article/view/276

Ali, M. M., Ali, Y. A., Asadi, S., & Riaz, N. (2023). AI-enhanced speech recognition for advancing pronunciation skills. *Revista Latinoamericana de la Papa, 27*(2), 51–66. https://papaslatinas.org/index.php/rev-alap/article/view/140

Ali, M. M., & Asad, M. (Eds.). (2026). *Overdependence on AI in academia*. IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3373-7097-2

Ansarifar, A., Shahriari, H., & Pishghadam, R. (2018). Phrasal complexity in academic writing: A comparison of abstracts written by graduate students and expert writers in applied linguistics. *Journal of English for Academic Purposes, 31*, 58–71. https://doi.org/10.1016/j.jeap.2017.12.008

Banks, D. (2008). *The development of scientific writing: Linguistic features and historical context*. London: Equinox.

Biber, D. (1988). *Variation across speech and writing*. Cambridge: Cambridge University Press.

Biber, D., Johansson, S., Leech, G., Conrad, S., & Finegan, E. (1999). *Longman grammar of written and spoken English*. Harlow: Longman.

Biber, D., & Gray, B. (2010). Challenging stereotypes about academic writing: Complexity, elaboration, explicitness. *Journal of English for Academic Purposes, 9*(1), 2–20. https://doi.org/10.1016/j.jeap.2010.01.001

Biber, D., & Gray, B. (2016). Phrasal versus clausal discourse styles: A synchronic grammatical description of academic writing contrasted with other registers. In *Grammatical Complexity in Academic English: Linguistic Change in Writing* (pp. 67–124). Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511920776.003

Brown, E. K., Hashimoto, B., & Brown, A. V. (2026). Predicting lexico-grammatical competence in L2 Spanish writing through multiple lexical diversity measures. *Studies in Second Language Acquisition*, *48*(3), 907–938. https://doi.org/10.1017/S0272263126101715

Casal, J. E., Lu, X., Qiu, X., Wang, Y., & Zhang, G. (2021). Syntactic complexity across academic research article part-genres: A cross-disciplinary perspective. *Journal of English for Academic Purposes, 52*, 1–12. https://doi.org/10.1016/j.jeap.2021.100996

Charnchairerk, C. (2022). Key defining linguistic features in the writing performance of first-year university students across different language proficiency levels. *LEARN Journal: Language Education and Acquisition Research Network, 15*(2), 858–891. https://files.eric.ed.gov/fulltext/EJ1358721.pdf

Chauhan, P. (2022). Fundamentals of academic writing: A literature review. *Journal of NELTA*, *27*(1–2), 161–180. https://doi.org/10.3126/nelta.v27i1-2.53201

Crowhurst, M. (1990). Reading/writing relationships: An intervention study. *Canadian Journal of Education, 15*(2), 155–172. https://doi.org/10.2307/1495373

Dong, J., Wang, H., & Buckingham, L. (2023). Mapping out the disciplinary variation of syntactic complexity in student academic writing. *System, 113*, 1–15. https://doi.org/10.1016/j.system.2022.102974

Durrant, P., Brenchley, M., & McCallum, L. (2021). *Understanding development and proficiency in writing: Quantitative corpus linguistic approaches*. Cambridge: Cambridge University Press. https://doi.org/10.1017/9781108770101

Ferris, D. R. (1994). Lexical and syntactic features of ESL writing by students at different levels of L2 proficiency. *TESOL Quarterly, 28*(2), 414–420. https://doi.org/10.2307/3587446

Flowerdew, J. (2012). English for research publication purposes. In B. Paltridge & S. Starfield (Eds.), *The Handbook of English for Specific Purposes* (pp. 301–321). John Wiley & Sons. https://doi.org/10.1002/9781118339855.ch16

Frempong, C. O., Kayi, S. A., & Ganu, S. (2023). The syntactic complexity of noun phrases second language students' writing. *Linguistics Initiative*, *3*(1), 36–48. https://doi.org/10.53696/27753719.3174

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. https://doi.org/10.1093/applin/amy005

Grant, L., & Ginther, A. (2000). Using computer-tagged linguistic features to describe L2 writing differences. *Journal of Second Language Writing, 9*(2), 123–145. https://doi.org/10.1016/s1060-3743(00)00019-9

Gray, B. (2015). *Linguistic variation in research articles: When discipline tells only part of the story*. Amsterdam: John Benjamins Publishing Company. https://doi.org/10.1075/scl.71

González, V. M. (2019) Ideational grammatical metaphor: a key resource for advanced and academic literacy. *Revista Signos, 52*(99), 109–133.

Hadir, Z., Mahmood, M. I., & Wakeel, T. (2025). Impact of blended learning through learn smart classroom on English academic writing accuracy among school students of FGEI Pakistan. *Linguistic Forum, 7*(3), 41–59. https://linguisticforum.com/index.php/ling/article/view/319

Halliday, M. A. K., & Martin, J. R. (1993). *Writing science: Literacy and discursive power*. London: The Falmer Press.

Halliday, M. A. K. (1996). On grammar and grammatics. In R. Hasan, C. Cloran & D. G. Butt (Eds.), *Functional Descriptions: Theory in Practice* (pp. 1–38). Amsterdam: John Benjamins.

Halliday, M. A. K. (2004). *An introduction to functional grammar*. London: Arnold.

He, Q., & Yang, B. (2018). A corpus-based study of the correlation between text technicality and ideational metaphor in English. *Lingua, 203*, 51–65. https://doi.org/10.1016/j.lingua.2017.10.005

Hernandez, H. P. (2022). Compressed and implicit syntactic features of L2 English academic research writing by Filipino research writers across disciplines: A cross-analysis. *Journal of Teaching English for Specific and Academic Purposes,10*(1), 51–73.https://doi.org/10.22190/JTESAP2201051H

Hinkel, E. (2002). Why English passive is difficult to teach (and learn). In Hinkel, E. & Fotos, S. (Eds.), *New Perspectives on Grammar Teaching* (pp. 233–260). Mahwah: Lawrence Erlbaum Associates.

Hutter, J, (2015). A corpus-based analysis of noun modification in empirical research articles in applied linguistics (Master's Thesis). Portland State University, Portland, United States. https://doi.org/10.15760/etd.2208

Hyland, K. (2002). Specificity revisited: How far should we go now? *English for Specific Purposes, 21*(4), 385–395. https://doi.org/10.1016/S0889-4906(01)00028-X

Hyland, K. (2006). Disciplinary differences: Language variation in academic discourses. In Hyland, K. & Bondi, M. (Eds.), *Academic Discourse across Disciplines*, (pp. 17–45). Peter Lang.

Hyland, K. (2007). Applying a gloss: Exemplifying and reformulating in academic discourse. *Applied Linguistics, 28*(2), 266–285. https://doi.org/10.1093/applin/amm011
Hyland, K. (2008). As can be seen: Lexical bundles and disciplinary variation. *English for Specific Purposes, 27*(1), 4–21. https://doi.org/10.1016/j.esp.2007.06.001
Hyland, K. (2009). *Academic discourse: English in a global context*. London: Continuum.
Hyland, K., & Jiang, F. (2017). 'We believe that. . .': Changes in an academic stance marker. *Australian Journal of Linguistics*, *38*(2), 139–161. https://doi.org/10.1080/07268602.2018.1400498
Hyland, K. (2023). English for academic purposes and discourse analysis. In Handford, M. & Jee, J. P. (Eds.), *The Routledge Handbook of Discourse Analysis*. Routledge. https://doi.org/10.4324/9781003035244
Imran, M., Almusharraf, N., & Dalbani, H. (2024). Future of writing in higher education: A review of prospective use of artificial intelligence and ChatGPT in academia. In *Innovative Pedagogical Practices for Higher Education 4.0* (pp. 108–125). CRC Press. https://doi.org/10.1201/9781003400691
Ishikawa, S. I. (2024). Lexicogrammar of the L2 English essays written by Asian college students: A corpus-based study. *Journal of Asia TEFL, 21*(1), 119–138.
Jalilifar, A., Alipour, M., & Parsa, S. (2014). Comparative study of nominalization in applied linguistics and biology books. *Research in Applied Linguistics, 5*(1), 24–43.
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. https://doi.org/10.6018/ijes/2017/2/272781
Jalilifar, A., Kaidan, H. Z., & Don, A. (2018). Nominalization in academic writing: A cross-disciplinary investigation of physics and applied linguistics empirical research articles. *Iranian Journal of Applied Language Studies*, *10*(2), 83–118. https://doi.org/10.22111/ijals.2018.4632
Johnson, A. (2016). *Academic writing: Process and product*. Lanham: Rowman & Littlefield.
Johnson, A. (2025). The intersection of genres and corpus linguistics: An exploration within the teaching of languages for specific purposes. *ILCEA, 57*, 1–20. https://doi.org/10.4000/137vt
Kamaşak, R., Sahan, K., & Rose, H. (2021). Academic language-related challenges at an English-medium university. *Journal of English for Academic Purposes*, *49*, 100945. https://doi.org/10.1016/j.jeap.2020.100945
Krashen, S. D. (1982). *Principles and practice in second language acquisition*. Oxford: Pergamon Press.
Light, R. J. (2001). *Making the most of college: Students speak their minds*. Cambridge: Harvard University Press.
Lu, X., Casal, J. E., Liu, Y., Kisselev, O., & Yoon, J. (2021). The relationship between syntactic complexity and rhetorical move-steps in research article introductions: Variation among four social science and engineering disciplines. *Journal of English for Academic Purposes, 52*, 1–13. https://doi.org/10.1016/j.jeap.2021.101006
Mahmood, M. A., Bano, N., Imran, M., & Almusharraf, N. (2026). Exploring the relationship between syntactic complexity, error types, and pedagogical implications in advanced writing: A quantitative analysis. *Reading & Writing*, 17(1), 1–10. https://doi.org/10.4102/rw.v17i1.587
Marr, J. W., & Mahmood, F. (2021). Looking past limiting conditions: Prioritizing meaning in EAP. *Journal of English for Academic Purposes*, *51*, 100979. https://doi.org/10.1016/j.jeap.2021.100979
Martínez, A. C. L. (2023). Analysis of changes in L2 writing over the time of a short-term academic English programme. *Porta Linguarum*, *39*, 111–127. https://doi.org/10.30827/portalin.vi39.22842
McNamara, D. S., Crossley, S. A., & McCarthy, P. M. (2010). Linguistic features of writing quality. *Written Communication*, *27*(1), 57–86. https://doi.org/10.1177/0741088309351547
Niamadpour, V., & Jalilifar, A. (2024). Book reviews in sciences: Structural and functional differences in lexical bundles. *Teaching English as a Second Language Quarterly*, *43*(4), 87–116. https://doi.org/10.22099/tesl.2024.49990.3280
Önem, E. E. (2026). Language proficiency and moves in Turkish and English research abstracts. *Khazar Journal of Humanities and Social Sciences, 29*(2), 107–116. https://doi.org/10.5782/2223-2621.1590
Osmond, A. (2016). *Academic writing and grammar for students* (2nd ed.). Sage.
Pang, N., Jiang, R., & Dong, J. (2026). Mapping disciplinary variation in syntactic complexity: A corpus-based study of German research article abstracts. *International Journal of Applied Linguistic*. https://doi.org/10.1111/ijal.70229
Parry, S. (1998). Disciplinary discourse in doctoral theses. *Higher Education, 36*, 273–99.
Raitskaya, L., & Tikhonova, E. (2020). Overcoming cultural barriers to scholarly communication in international peer-reviewed journals. *Journal of Language and Education, 6*(2), 4–8. https://doi.org/10.17323/jle.2020.11043
Raza, A., Ahmad, M., & Zulfiqar, K. (2026). A corpus-assisted critical discourse analysis of ideology in Pakistani and international digital news headlines. *Linguistic Forum, 8*(1), 21–40. https://linguisticforum.com/index.php/ling/article/view/313

Ruan, Z. (2018). Structural compression in academic writing: An English-Chinese comparison study of complex noun phrases in research article abstracts. *Journal of English for Academic Purposes, 36*, 37–47. https://doi.org/10.1016/j.jeap.2018.09.001

Sfeir, M. (2025). Do-it-yourself corpora and discipline-specific writing: A focus on the benefits of corpus building and cleaning (in the age of large language models). *English for Specific Purposes*, *79*, 70–86. https://doi.org/10.1016/j.esp.2025.04.002

Saricaoglu, A., & Atak, N. (2022). Syntactic complexity and lexical complexity in argumentative writing: Variation by proficiency. *Novitas-ROYAL*, *16*(1), 56–73.

Schmied, J. (2011). Academic writing in Europe: A survey of approaches and problems. In Schmied (Ed.), *Academic Writing in Europe: Empirical Perspectives* (pp. 1–22). Göttingen: Cuvillier Verlag.

Shen, C., Guo, J., Shi, P., Qu, S., & Tian, J. (2023). A corpus-based comparison of syntactic complexity in academic writing of L1 and L2 English students across years and disciplines. *Plos One*, *18*(10), 1–20. https://doi.org/10.1371/journal.pone.0292688

Siddique, A. R., Ahmad, M., & Akhter, N. (2025). Diachronic variation in Pakistani english sports news: A multi-dimensional analysis. *Linguistic Forum, 7*(1), 51–72. https://linguisticforum.com/index.php/ling/article/view/278

Singh, A. A., & Lukkarila, L. (2017). *Successful academic writing: A complete guide for social and behavioral scientists*. New York: Guilford Publications.

Staples, S., & Reppen, R. (2016). Understanding first-year L2 writing: A lexico- grammatical analysis across L1s, genres, and language ratings. *Journal of Second Language Writing, 32*, 17–35. https://doi.org/10.1016/j.jslw.2016.02.002

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. https://doi.org/10.1177/074108831663

Strongman, L. (2013). *Academic writing*. UK: Cambridge Scholars Publishing.

Taguchi, N., Crawford, B., & Wetzel, D. Z. (2013). What linguistic features are indicative of writing quality? A case of argumentative essays in a college composition program. *TESOL Quarterly, 47*, 420–430. https://doi.org/10.1002/tesq.91

Tian, M., & Zhang, Y. (2023). Exploring nominalization in academic writing: A comparative study of shipbuilding and oceanography engineering and linguistics. *Athens Journal of Philology, 10*(2), 101–122.

Ullah, I., Batool, H., & Irshad, S. (2026). Exploring university students' acceptance of generative AI for writing: An extended technology acceptance model (TAM 3) perspective. *Khazar Journal of Humanities and Social Sciences, 29*(2), 243–268. https://doi.org/10.5782/2223-2621.1598

Wu, X., Mauranen, A., & Lei, L. (2020). Syntactic complexity in English as a lingua franca academic writing. *Journal of English for Academic Purposes*, *43*, 100798. https://doi.org/10.1016/j.jeap.2019.100798

Xiao, W., & Zhao, X. (2026). The disciplinary variations of diachronic trends of syntactic complexity in research article abstracts. *Scientometrics*, *131*(1), 235–264. https://doi.org/10.1007/s11192-025-05522-9

Yin, S., Gao, Y., & Lu, X. (2021). Syntactic complexity of research article part-genres: Differences between emerging and expert international publication writers. *System, 97*, 1–14. https://doi.org/10.1016/j.system.2020.102427

Zahra, M., Bashir, R., & Zahra, K. (2026). Negotiating laughter: Power, gender, and classroom discourse in Pakistani university settings. *Khazar Journal of Humanities and Social Sciences, 29*(2), 169–190. https://doi.org/10.5782/2223-2621.1594

Zhou, W., Li, Z., & Lu, X. (2023). Syntactic complexity features of science research article introductions: Rhetorical- functional and disciplinary variation perspectives. *Journal of English for Academic Purposes, 61*, 101212. https://doi.org/10.1016/j.jeap.2022.101212

Zhu, W. (2004). Faculty views on the importance of writing, the nature of academic writing, and teaching and responding to writing in the disciplines. *Journal of Second Language Writing, 13*(1), 29–48. https://doi.org/10.1016/j.jslw.2004.04.004

Ziaeian, E., & Golparvar, S. E. (2022). Fine-grained measures of syntactic complexity in the discussion section of research articles: The effect of discipline and language background. *Journal of English for Academic Purposes, 57*, 101116. https://doi.org/10.1016/j.jeap.2022.101116