

Grammatical Cohesion in the Introduction Chapters of Linguistics Ph.D. Theses Written by Anglophone Academic Writers

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Received: June 20, 2024 Accepted: August 29, 2024 Online Published: September 15, 2024

doi:10.5539/ijel.v14n5p94 URL: <https://doi.org/10.5539/ijel.v14n5p94>

Abstract

Effective formal writing skills are crucial for educational success and improved academic status; however, writing in English can be challenging, especially for inexperienced English writers and for those individuals for whom English is not their primary language. One often experienced challenge is the appropriate use of cohesive devices (CDs) to organize texts and enhance their semantic potential. Thus, this study analyzed the grammatical CDs utilized by Anglophone Academic Writers (AAWs) in the introduction chapters of 45 Ph.D. theses (86,000 words) in the field of linguistics using Halliday and Hasan's CDs taxonomy. The analysis showed that AAWs mainly employed references, particularly personal and demonstrative, followed by conjunctions, particularly additive ones, as their dominant CDs. Additive conjunctions helped establish the coherent progressions of ideas in the introductions, while personal references, especially first-person pronouns, conveyed authorial presence. Demonstrative references emphasized important ideas discussed in the theses. The strategic application of these grammatical CDs effectively directed readers through the introductions, creating a logical flow for the writers' points. Therefore, this study presents valuable insights into the cohesive writing practices of AAWs, which can be used to enhance writing instruction and help novice English writers in improving their formal writing skills.

Keywords: Anglophone Academic Writers (AAW), Cohesion, Cohesive Devices (CDs), Halliday and Hasan's taxonomy of CDs

1. Introduction

Writing is a skill with which many people struggle, especially academic writing. Academic writing includes all forms of writing performed in academic contexts, such as writing books, conference or research papers, dissertations, and theses. In many academic settings, both native and non-native English speakers may use the English language when writing academic papers, those individuals pursuing advanced degrees at the post-graduate level. Writing challenges tend to arise when writers lack expertise in writing important documents, such as theses, in English or when English is not their primary language. These challenges may stem from difficulties associated with organizing and structuring ideas, words, sentences, and paragraphs. How writers organize the words in their sentences and connect sentences and ideas to each other determines the impact of their messages. Therefore, novice and non-native English writers may face cohesion and coherence challenges (Anindita, 2024; Becker, 2006; Horverak, 2018; Mohseni & Samadian, 2019; Wang, 2007) as they may struggle to create texts with cohesive sentences and coherent paragraphs. This lack of cohesion is one of the primary challenges in writing (Asami, 2014; Faradhibah & Nur, 2017; Wang, 2007).

A proficient writer pays close attention to the cohesion and coherence of sentences when writing. An expert writer employs appropriate vocabulary in a logical order that effectively conveys the intended idea. The use of grammatical and lexical components is necessary to establish connections among ideas, clauses, and sentences. Hence, cohesion is one of the essential elements that writers use to ensure that their texts are connected. Halliday and Hasan (1976) emphasized that cohesion plays a crucial role in distinguishing non-texts from texts. Cohesive Devices (CDs) facilitate the expression of writers' opinions by enabling them to transition from a sentence, point, or paragraph to another using words or phrases. The role of CDs is to connect and unify words, sentences, and paragraphs to each other. They have a significant impact on writers' understandings of the writing process and their knowledge of different genres. In fact, the crucial factor in assessing whether a series of sentences constitutes a text is the cohesive interactions that occur both within and between the sentences, resulting in the creation of

texture (Halliday & Hasan, 1976).

Consequently, an investigation of the different types of CDs has great importance to writers and readers because it helps writers understand the appropriate use of CDs in their writing and readers grasp the organization of a text by intentionally knowing the role CDs do in a writing. Understanding the reason behind a writer's selection of particular CDs over others can provide insight into the logical progression of the ideas within the text. Considering the crucial role that CDs play in the cohesion and coherence of a text, one could observe how writers of certain texts apply them in particular genres. Upon reviewing existing research on cohesion in academic writing, it appears that most studies have focused on analyzing CDs in students' essays, particularly those essays of English as a Foreign Language (EFL) and English as a Second Language (ESL) students. To the researcher's knowledge, limited attention has been given to the use of CDs in post-graduate written academic papers, such as theses, produced in Anglophone countries. Hence, this study aims to analyze the grammatical CDs used in the introduction chapters of theses written by Ph.D. students who graduated from either American or British universities, using Halliday and Hasan's (1976) taxonomy of CDs. It will explore the different types of grammatical CDs used by Anglophonic writers as they engage in academic writing. This exploration contributes to cohesion research by providing a comprehensive description of how proficient AAWs achieve cohesion in the introductions to their Ph.D. theses. The findings of this research will serve as a fundamental and primary reference for any researcher in the field of discourse analysis. Furthermore, this research can also help novice writers who may struggle to write coherent introductions, as when it comes to the use of CDs in academic papers, novice writers and English language learners frequently display various degrees of ability compared to experienced writers (Adas, 2012; Crossley & McNamara, 2012, 2016). Writing experience, academic convention knowledge, and language skills are elements that affect how CDs are used. Exposure to academic studies that presented how cohesion is achieved by advanced writers may influence how other writers employ CDs. Any deliberate efforts to become proficient in CDs can help academic writers communicate more effectively (Becker, 2006; Pu et al., 2023). In addition, this research contributes to genre research in linguistics, which involves the investigation of the recurring patterns of grammar usage, key words, and structures in specific types of texts.

This research aimed to highlight the commonalities of AAWs regarding cohesion by answering the following research questions:

- 1) What are the different types of grammatical CDs found in the introduction chapters of linguistic Ph.D. theses written by Anglophone Academic Writers?
- 2) What is the most common type of grammatical CD found in the introduction chapters of linguistic Ph.D. theses written by Anglophone Academic Writers?
- 3) What is the least used type of grammatical CD found in the introduction chapters of linguistic Ph.D. theses written by Anglophone Academic Writers?

2. Definition of Terms

2.1 Anglophone Academic Writers

AAWs are individuals whose first language may or may not be English, but have studied at and graduated from universities in Anglophonic countries. The Anglosphere typically comprises five primary countries: the United States, the United Kingdom, Australia, Canada, and New Zealand. Since the writers graduated from a university in an Anglophonic country, academic expectations are similar across the writers, regardless of their native language.

2.2 Halliday and Hasan's (1976) Taxonomy of Cohesive Devices

Halliday and Hasan (1976) developed a framework that includes descriptions of various grammatical devices to provide a critical guideline for analyzing and studying the coherence and cohesion of written texts. They identified five key CDs used in English texts. Four of these CDs are grammatical: reference, ellipsis, substitution, and conjunction. The fifth CD is lexical cohesion. These elements impact semantic relationships in a way that contributes to the unity of the text.

Reference implies that linguistic elements are connected by their meaning or to that which they refer. Halliday and Hasan (1976) identified three categories of reference: personal, demonstrative, and comparative. Personal references include personal pronouns, possessive pronouns, and possessive determiners. A demonstrative reference entails verbal pointing where a writer uses terms, like this, these, and here, to indicate proximity or, that, there, and those, to suggest distance. Comparative references enhance cohesion in texts by creating relationships of contrast, such as same, identical, so, and such.

Halliday and Hasan (1976) observed that references enable cohesion by enforcing the connections between

elements. They further classified references into anaphoric and cataphoric types to demonstrate the differing ways references enforce cohesion. An anaphoric reference points to a word or phrase used previously used in the text, while a cataphoric reference points to a word used later in the text. Halliday and Hasan (1976) also distinguished between endophoric and exophoric references, where endophoric references facilitate cohesion within the text, while exophoric references enable the cohesion of text with items outside the text.

The taxonomy also includes substitution elements that influence grammatical relationships to further advance the unification of text. Halliday and Hasan (1976) discussed three forms of substitution: nominal, verbal, and clausal. Nominal substitutions include linguistic items that are used to replace noun-based elements. For example, one or ones can be used to substitute for a noun. Verbal substitution involves replacing a verb or verb phrase with another verb, such as using 'do' as a substitution of a specific verb. Clausal substitution occurs when a linguistic item replaces entire phrases or clauses. This substitution can be done using words, such as so, to substitute for a previous clause. The taxonomy also includes an ellipsis. An ellipsis is a CD used to avoid repeating a whole clause or phrase. When an ellipsis is used, readers are expected to retain and understand the language used in an earlier part of the text being read.

In addition, conjunctions are crucial in enhancing the semantic relationships between words, clauses, sentences, and paragraphs to improve textual cohesion. Halliday and Hasan (1976) identified four categories of conjunctions: additive, adversative, causal, and temporal. Additive conjunctions, such as and, or, also, furthermore, besides, likewise, and for instance, serve to coordinate ideas. Adversative conjunctions, including but, however, on the other hand, and nevertheless, express contrast between ideas. Causal conjunctions emphasize causal relations of reason, purpose, and outcome. Examples include so, this, in that case, because, and as a result. Temporal conjunctions are used to enhance linkages between two sentences by indicating time relationships. They include then, previously, finally, and next day.

Concerning lexical cohesion, Halliday and Hasan's (1976) model is characterized by two critical components: collocation and reiteration. Under reiteration, some lexical relations include general words, superordinate, near-synonymy, synonymy, and repetition. However, this research did not include an in-depth investigation of lexical cohesion, as it mainly concentrated on grammatical cohesion. Although Halliday and Hasan (1976) acknowledges lexical cohesion as an essential element of cohesion, this study examined grammatical CDs only. This choice was made because of the large corpus of 86,000 words, which needed a thorough examination and including an analysis of lexical CDs would be time consuming. Hence, a future study on this group of writers will present findings in regard to lexical cohesion development.

3. Literature Review

Cohesion refers to the semantic relationship between components within a text, which enables the writer conveys their intended meaning effectively (Halliday & Hasan, 1976). A text's cohesion can be achieved by both the grammatical structure and the lexical choices made by its writer, such as references, substitutions, ellipses, conjunctions, and lexical cohesion. The first four are the grammatical CDs that help link various components of a text together which leads to a text's overall unity.

The importance of CDs has led to extensive research on their use by English writers. Past studies have asserted that cohesion is a critical textual element that enables writers to create organized texts that can be easily understood by readers (Ghasemi, 2013; Wang et al., 2024). Many of these investigations on CDs used the Hallidayan model. Some studies have basically described the use of CDs in English texts (Afrianto, 2017; Daud et al., 2023), while others examined errors in CDs use (Fitriati & Yonata, 2017; Putri et al., 2021) or conducted a comparative analysis of their uses between different groups of writers (Rahayu et al., 2022). Certain studies focused on analyzing all types of CDs in English writings, whereas others examined specific types, such as conjunctives (Adiyanti, 2017; Ganie et al., 2021; Saeed, 2023) or reference markers (Syam, 2020).

The majority of the studies focused on examining the use of CDs in EFL writings (Almutairi, 2017; Anindita, 2024; Bahaziq, 2016; Chanyoo, 2018; Liu & Braine, 2005; Nindya & Widiati, 2020; Othman, 2019). Some studies also compared the writing styles of native English speakers (L1) and English language learners (L2) (Bahaziq, 2016; He, 2020; Lee, 2021; Saadat & Alavi, 2018). The existing literature showed that L1 writers tended to use a greater variety and number of CDs compared to L2 writers. Some of the key factors that influenced the utilization of CDs included the writers' language proficiency, writing experience, and familiarity with academic conventions (Wang et al., 2024). Some of the studies presented L1 writers as demonstrating a balance in both the frequency and use of various CDs (Hussein, 2014; Rahman, 2013). L1 writers used a wider range of CDs, including substitutions, ellipses, additive conjunction, personal reference, and lexical repetition (Ghasemi, 2013; He, 2020; Saadat & Alavi, 2018; Uru et al., 2021). They showed the effective use of personal pronouns, including me, him,

we, and I; additive conjunctions, such as and and also; as well as demonstrative reference, such as this, to achieve cohesion as they wrote their texts. Specifically, L1 writers used demonstrative this in combination with shell nouns and other general words to generate a smooth and effective information flow (Uru et al., 2021). In contrast, English L2 students experienced challenges using various CDs, especially conjunction and reference (Anindita, 2024; Asami, 2014; Bahaziq, 2016). The low cohesion density in L2 writing can be attributed to the use of short sentences. In addition, they tended to overuse certain CDs, such as conjunction and repetition, in their academic writing at the expense of other device types, like substitution and ellipsis (Rahman, 2013; Wang et al., 2024), or tended to use fewer CDs and generated less cohesive texts than L1 writers (Lee, 2021).

Overall, based on the reviewed comparative studies, the key distinction between L1 and L2 writers is that L1 writers showed more diversity in their use of CDs and maintained a better balance in the frequency of the use of different CDs. They tended to use more diverse cohesive items, whereas L2 writers restricted their usage of CDs to certain types or overused them. In summary, the literature indicated that differences exist between the groups of writers in utilizing CDs in their writings.

The similarity among the studies mentioned in the literature review is that the data sources were student essays, as opposed to professional academic writing. The studies focused on analyzing the texts of EFL or ESL learners as well as native English speakers. The primary focus was on university-level writing, not the writings of experienced, academic writers. These studies acknowledged that the use of CDs and the quality of writing of language learners may vary from those writings of experienced writers. This presents a significant difference compared to the primary focus of study in this research, which is on cohesion in academic writing at the Ph.D. level. The Ph.D. writers of this study have completed, defended, and published their doctoral theses, which is a major step to becoming an established academic writer. Completing their theses indicates that their work has been viewed to be an acceptable standard by their academic institution and field.

4. Research Methodology

This study is a descriptive qualitative research study. The primary research objective was to analyze Anglophone Academic Writers' (AAWs) employment of grammatical cohesion in the introductions to their theses. The texts were analyzed using Halliday and Hasan's (1976) cohesive taxonomy. The analyzed introductions were collected from the ETHOS British Library and ProQuest databases. As shown in Table 1, the data consist of 45 Ph.D. introduction chapters in the field of linguistics between 2017 and 2022 with a total of 86,000 words. To conduct a comprehensive analysis of grammatical cohesion, the researcher carefully reviewed each introduction chapter to gain a deep understanding of the content, ideas, and arguments contained within. The texts were subsequently analyzed to identify instances of grammatical CDs by identifying every occurrence of the use of a CD. The identified CDs were classified using appropriate labels from Halliday and Hasan's cohesion taxonomy. During the cohesion analysis of the data, each occurrence of a reference was categorized according to Halliday and Hasan's classification of reference. The instances that were challenging to classify into one of the three types, as they did not conform to the three types described by Halliday and Hasan, were not specified a type. The same process was used for the conjunctions and certain conjunctions did not clearly fit within any of Halliday and Hasan's four categories. In instances where it was challenging to identify the specific type of conjunction, these occurrences were recognized for their unique roles in the text and labeled with a broader tag only.

Table 1. Number of Introduction Chapters of Ph.D. Theses and Word Count

Introduction Chapters	Words	Years of Publication
45	86000	2017-2022

Overall, Halliday and Hasan's (1976) taxonomy of CDs can be considered to be a reliable and valid framework for discourse analysis. It is a comprehensive classification system that identifies the various linguistic features that contribute to the cohesion of a text. The taxonomy provides a clear approach to identifying and categorizing the different CDs used in a text. This helps to ensure that the data collected is consistent and accurate. This taxonomy has been validated and was given credentials from previous research. Additionally, the reliability of the data collection process, using online sources, such as ETHOS and ProQuest, and checking the job affiliations and CVs of the writers to confirm that they graduated from an American or a British university helped ensure that the AAWs indeed wrote the texts being analyzed. ETHOS and ProQuest are good sources for collecting texts for discourse analysis because they contain a large and diverse collection of academic theses that can provide a rich data set. In addition, they are well-organized and user-friendly. Both repositories provide advanced search tools and other features that can help researchers find the texts they are looking for and download or access them in a convenient

and user-friendly format. This advanced search functionality can save researchers time and effort and help to ensure that they can collect the texts they need for their analyses.

5. Results and Discussion

The analysis focused on the introduction chapters of 45 Ph.D. theses produced by AAWs in the United States and United Kingdom. The goal was to determine the various types, numbers, and frequency of grammatical CDs used by employing Halliday and Hasan's CD taxonomy as a theoretical framework. Tables 2, 3, and 4 below give a comprehensive analysis of each type of grammatical CD found in the texts, including both the frequency and percentage of usage.

To answer the first research question (i.e., What are the different types of grammatical CDs found in the introduction chapters of linguistic Ph.D. theses written by Anglophone Academic Writers?), the analysis revealed that all four types of grammatical CDs were present. These CDs were used to varying extents. References were predominantly used with 60.1%. The next type was conjunctions, which accounted for 39%. Although ellipses and substitution were present, their occurrences were low, accounting for only 0.4% and 0.5%, respectively. Table 2 presents the number of incidents of reference, conjunction, ellipsis, and substitution in the dataset, as well as the percentages of each type. Table 3 displays the numbers and percentages for each reference type identified in the introductions, and Table 4 shows the numbers and percentages of each specific type of conjunction found in the data.

The analysis revealed patterns regarding the rhetorical strategies used by the AAWs. To answer the second research question (i.e., What is the most common type of grammatical CD found in the introduction chapters of linguistic Ph.D. theses written by Anglophone Academic Writers?), the analysis showed that the writers primarily utilized reference and conjunctions as their coherent strategies. As for the references, the data showed that they were significantly utilized as the primary method of cohesion, accounting for around 60.1% of the total grammatical CDs. The writers often used personal and demonstrative references, indicating that they frequently referred to or anticipated concepts, individuals, and/or objects in their introductions. Personal references accounted for 20% (see Table 3) of the usage of the references and the writers employed pronouns to signify and refer to entities, whereas demonstrative reference, comprising 71.8% (see Table 3), were utilized to precisely specify entities.

The analysis showed that the neutral demonstrative, which is the definite article 'the' appeared 5,004 times in the texts, accounting for 79% of the total demonstrative references used (see Table 5 below). The definite article 'the' is a grammatical CD that performs the function of a reference (Halliday & Hasan, 1976). It either points to or identifies an entity. It helps recall a topic, discussion, or words that were mentioned earlier in a discussion or specifies an entity that both the writer and readers can understand. It is introduced as a neutral demonstrative as it does not add any extra information about the item to which it is referring. It was used to provide specificity by specifying exact concepts or items that were discussed earlier in the text to enhance the clarity of the discussion. It was also used with words in the text where the writers presumed that the readers had shared understanding. Hence, the definite article 'the' appeared many times to create cohesion that facilitated a smooth flow of discussion by linking information between text sections. Its use is very important in writing texts because it helps to alleviate unnecessary ambiguity and ensures that the reader understands the exact information intended by the writer (Halliday & Hasan, 1976).

In addition, the use of the term 'this,' which is a demonstrative pronoun that functions as a CD for referring to a previously introduced concept, object, or argument, was prevalent in the dataset. The frequent utilization of 'this' in the thesis introductions (see Table 5) indicated that the writers often referred back to their ideas to preserve cohesion and coherence. It enabled the writers to expand upon previously introduced points or arguments without the need to repeat them completely, resulting in an efficient and focused writing style. It was frequently employed to introduce a point-of-view or elaborate on a preceding concept (e.g., this implies that), which is a popular rhetorical strategy in academic writing (Rustipa, 2015). Both the frequency and selection of the demonstratives were greatly influenced by the specific genre of the written text. Compared to genres that are more conversational, academic writing tends to employ demonstrative references more frequently (Maes et al., 2022).

The writers also employed personal pronouns, such as I and we, which are classified as personal references in Halliday and Hasan's cohesion taxonomy, instead of using the passive voice. The use of personal pronouns in academic writing has been a subject of ongoing debate (Başal & Bada, 2012; Hyland, 2002). Academic writing has traditionally been distinguished by its objectivity, which is frequently achieved through the employment of passive constructs (Harwood, 2005). Nevertheless, the utilization of personal pronouns, such as authorial I or we, has gained increasing acceptance in several disciplines to establish an involved and straightforward manner of writing (Dontcheva-Navrátilová, 2013; Xu, 2017). The AAW writers used the active voice, which made their

introductions straightforward, as opposed to the passive voice, in which the performer of the action is left undefined. The use of the active voice also created an authorial presence and showed that the writers were actively involved in the research process. It can be used to enhance the personal and engaging nature of the text, allowing it to impact the reader. Certain academic fields might show different levels of acceptance toward the utilization of personal pronouns (Hayland, 2001). Furthermore, several writers employed the pronoun I, while others utilized we, indicating that they took either an individual or collective position. In the end, the utilization of the first-person pronouns I and we indicated that the writers used an active and personalized writing style in the context of academic writing. This use shows that a trend exists in which writers are shifting toward a straightforward and engaging form of discourse (Li, 2022; Mirzapour, 2016).

There were 5,725 incidents of conjunctions in the dataset with a total percentage of 39%. The writers mainly relied on additive conjunctions (60.5%) (see Table 4). Additive conjunctions are used to connect ideas that are similar or related. The frequent use of additive conjunctions, such as 'and' and 'also,' indicated that the writers were often adding new information or ideas to the discussion. This is typical in any academic introduction because the writer is required to provide a substantial amount of background information, including the research context, its significance, the research problem, and the research objectives. The frequent use of additive conjunctions indicated that the writers were gradually adding information to create a thorough introduction, presenting their studies as cohesive wholes by connecting different aspects and discussions.

On the contrary, the frequency of adversative (8.7%) and causal conjunctions (23%) were comparatively low (see Table 4). Adversative conjunctions, such as but, however, and yet, are usually employed to indicate a conflict or contrast between ideas. The infrequent utilization of adversative conjunctions, with a total of only 502 incidents, indicated that the writers prioritized the construction of cohesive introductions in which the ideas reinforced and added to one another over the presentation of contrasting viewpoints. Similarly, the utilization of causal conjunctions, such as because, since, and thus, imply that the nature of introductions does not necessitate the extensive usage of causal conjunctions. This limited use of adversative and causal conjunctions makes sense in the context of a thesis introduction because the writers are more concerned with presenting their research topic and plans than with critically analyzing other points-of-view and findings or establishing cause-and-effect connections. Temporal conjunctions, conversely, were found to be rarely used. They only appeared 216 times in the dataset (3.8%), which may have been due to the writers' expectations related to introduction writing. Thesis introductions usually do not include chronological descriptions. Instead, they contain introductions to study problems and purposes as well as their significances, so the utilization of temporal conjunctions may be uncommon. However, CDs like temporal conjunctions may be employed in various ways in different academic fields. The standards for thesis introductions and writing norms vary depending on the writer's discipline. English writers in the linguistic discipline may have certain preferences that result in low occurrences of temporal conjunctions.

Furthermore, instances of substitution (0.5%) and ellipsis (0.4%) were rare in the analyzed texts which answers the third research question (i.e., What is the least used type of grammatical CD found in the introduction chapters of linguistic Ph.D. theses written by Anglophone Academic Writers?). The infrequent utilization of these CDs indicated a preference among the writers for explicitness and clarity in their writing, as they tended to fully express each point rather than depending on the reader to infer it. Also, while spoken language involves the frequent use of the cohesive method of substitution, it does not have the same level of significance in written texts (Xin-Hong, 2007).

I predicted that the Ph.D. AAWs would frequently use references and conjunctions because several studies showed that to be the case in general as one's writing proficiency improved. For instance, Suningsih (2016) found that the frequency of reference use increased overall, rising from 45% for low-level writers to over 60% for advanced writers. Although inexperienced writers often use references to connect concepts in their introductions, how they use them may be less complex than that of skilled writers (Badenhorst, 2017). Regarding conjunction use, inexperienced writers tend to use less complex sentence structures. In contrast, conjunction use is often prioritized by proficient students to maintain coherence and enhance the quality of their writing (Saputra & Hakim, 2020).

In summary, the findings suggested that Ph.D. AAWs combined several subtypes of CDs to construct coherent and well-structured introductions. They prioritized clarity, explicitness, and conformance to academic conventions, while writing their theses introductions. The Ph.D. AAWs had a preference for conveying their ideas directly and clearly rather than relying on ellipsis or substitutions. Reference was used to tie concepts together in the introductions using demonstratives and personal pronouns. The writers frequently employed this technique in their introductions to provide easy transitions for the readers by connecting background material to the primary research issue. Conjunctions were used the most to logically connect concepts, words, and sentences and improve overall coherence. It is important to acknowledge that these results may not be universally applicable to all Ph.D. theses,

as people's writing standards and academic expectations significantly differ, and each writer has unique stylistic preferences. However, the discipline-specific conventions for writing these introductions in this particular field can be shown based on the extensive examination that was done on successfully defended and approved Ph.D. linguistics theses.

Table 2. Number and percentages of the types of grammatical cohesive device in the total data of Ph.D. theses introduction chapters

Type	Reference	Conjunction	Ellipsis	Substitution	Total
Number	8850	5725	65	77	14717
Percentage	60.1%	39%	0.4%	0.5%	100%

Table 3. Number and percentages of reference types in the total data of Ph.D. theses introduction chapters

Type	Not specified	Personal	Demonstrative	Comparative	Total
Number	444	1784	6333	289	8850
Percentage	5%	20%	71.8%	3.2%	100%

Table 4. Number and percentages of conjunction types in the total data of Ph.D. theses introduction chapters

Type	Not specified	Additive	Adversative	Causal	Temporal	Total
Number	233	3452	502	1322	216	5725
Percentage	4%	60.5%	8.7%	23%	3.8%	100%

Table 5. The use of demonstrative reference by the Ph.D. AAWs

Demonstrative Reference	Cohesive Devices Used	Frequency	Percentage (%)
Selective	This	925	14.7%
Demonstrative	These	337	5.3%
	Those	67	1%
Definite article	The	5004	79%
Total		6333	100%

6. Problems and Limitations

Every research study has strengths and limitations. As a researcher, I recognize that effectively using one's strengths can enhance the quality and validity of the results obtained in the research and recognizing and addressing limitations can help strengthen the quality of discourse analysis research. In order to provide an unbiased and clear description of this study process, I intend to acknowledge possible limitations, while also highlighting the possible strengths.

In this study, some challenges and limitations were expected to occur throughout the analysis process. The first challenge was the lack of inter-rater reliability, as I was the only analyst conducting the study. Without having different raters, the consistency of the CDs' classification between different analysts could not be measured. Analysts may interpret and classify CDs in different ways, resulting in possible variations in the results for the same datasets. The second challenge was that the study's findings may show low external validity, indicating that the findings may not be relevant or applicable in disciplines besides the field of linguistics. The third challenge was related to bias in the data selection process. My choice of which Ph.D. introductions to analyze for this study may have been unintentionally biased.

However, some of these perceived limitations can be seen as strengths. By conducting the analysis independently, I was able to perform a thorough and deep examination of the data. I dedicated substantial time, energy, and attention to comprehensively analyzing the CDs in the selected Ph.D. introductions. The fact that only one researcher did the analysis ensured consistency in the use of Halliday and Hasan's taxonomy, eliminating the possibility of differences in ratings that could exist between different analysts. Moreover, my deep familiarity with the distinct topics of Ph.D. theses within the field of linguistics enhanced my ability to appropriately identify and analyze patterns of the usage of CDs. Additionally, the large dataset was a strength as it provided a more thorough representation of how grammatical CDs are used in this specific context. Furthermore, the utilization of Halliday and Hasan's taxonomy as the framework for analysis is a strength. This framework has gained significant attention and acceptance in the field of discourse analysis, serving as a solid and recognized framework for CD analysis.

7. Conclusion

Cohesion is a critical language resource that contributes to a text's overall unity. CDs play integral roles in the creation of logical and informed arguments within academic writing, determining the quality and coherence of academic papers by helping writers create adequately connected and cohesive sentences. The strategic choice to use grammatical CDs in academic writing is often informed by the need to improve clarity and logical flow. The specific use of references, conjunctions, ellipses, and substitution may vary among experienced writers, English language learners, and novice writers. When it comes to the structural and organizational areas of writing, certain writers might have more difficulties than others. Instruction in writing for adults needs to focus on helping students become more self-aware of their own cognitive processes by teaching them strategies for meeting the organizational and structural requirements for writing. Students can greatly benefit from instruction on organizing strategies for written texts, which helps improve their writing skills (Becker, 2006). Hence, the intentional use of CDs in writing enables writers to produce logical progressions of ideas and enhance the content of their writing. Overall, the AAWs used different types of grammatical CDs to produce texts that were well-organized and coherent. Any academic writer's abilities to effectively communicate their ideas can be significantly enhanced by mastering the use of CDs.

The research findings indicated that all four categories of grammatical CDs were present in the Ph.D. theses' introductions in the field of linguistics. Reference was the most common, accounting for 60.1% of the CDs. The second most frequent category was conjunctions, which accounted for 39% of the CDs. The frequency of substitution and ellipsis was notably lower, at 0.4% and 0.5%, respectively. The predominance of reference and conjunctions may reflect the norms of the linguistics discipline. Linguists seem to prefer using these CDs to write an organized and connected introduction. These findings may help students of linguistics and related fields write more clearly and coherently. They may also guide academic writing instruction, particularly in linguistics and other humanities fields. Instructors can help students improve their academic writing and follow their field's conventions by learning the CDs used by AAWs.

In conclusion, the scope of this study was restricted to the analysis of grammatical CDs. For future research, the incorporation of an investigation of lexical CDs would provide a deeper view on the cohesive tools used by AAWs in their writing. Also, it may be valuable to conduct a comparative analysis on the use of CDs in the introductions of linguistics theses versus ones from other fields of study. Exploring disciplinary differences in professional academic writing could reveal how experienced writers achieve cohesion. The comparative research would expand on these current findings.

Acknowledgments

Not applicable.

Authors' contributions

Not applicable.

Funding

Not applicable.

Competing interests

Not applicable.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Canadian Center of Science and Education.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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