The Analysis of Grammatical Cohesive Devices in the Abstract of Academic Discourse

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Abstract—**Coherent writing skills have a strong correlation with the quality of English writing. Abstract, as a relatively independent and complete discourse form that condenses the content of academic discourse, can predict and dominate the content and structure of the main text. This paper collects a total of 40 academic paper abstracts in the discipline of applied linguistics, 20 from Chinese students and 20 from international scholars, to compare the different distribution of cohesive devices between Chinese student writers and international Journal writers. Based on the study, we find that there is no significant difference in the frequency, type, and control of cohesive devices used by Chinese students and international scholars. But Chinese students overuse some types of cohesive devices, especially in the use of the conjunctive device "and". The use of "I" has never appeared in the corpus of Chinese students and the usage of "we" has been used by Chinese student writers and international Journal writers. This paper also shows that Chinese English majors actively keep up with international journals and have a sense of international writing in the process of learning writing.**

Index Terms—**Abstract, academic discourse, contrastive study, cohesive device**

I. INTRODUCTION

Academic discourse is the outcome of a process of getting people to believe things. All reporting occurs within a disciplinary context and persuading readers to accept a particular observation as a worthwhile contribution involves careful decisions about how best to contextualize results and embed them in disciplinary argument, affiliation, and agreement-making. Abstract, as a relatively independent and complete discourse form that condenses the content of academic discourse, can predict and dominate the content and structure of the main text. This puts forward high requirements for the cohesion of its language and the coherence of its logic. Therefore, various cohesion measures must be used to achieve the continuity of internal components. Coherent usage writing skills have a strong correlation with the quality of English writing. Enkvist [1] considered the achievement of cohesion in writing as an indefinable, obstruct, and controversial concept which is difficult to teach and difficult to learn.

Discourse unity can only be established via the use of cohesive devices that contribute to text cohesion. A text, according to Halliday and Hasan [2], is "any passage, spoken or written, of whatever length, that does form a unified whole" and "is best regarded as a semantic unit". Halliday and Hasan

[2] perceived cohesion as the only factor that distinguishes texts from contexts. This position was supported by Alarcon and Morales [3], who stated that cohesion refers to the linguistic features which help make a sequence of sentences a text. The mastery of cohesive devices is a crucial element of effective academic writing and essential for academic success in any university program where English is the medium of instruction. Consequently, the utilization of cohesive devices in academic writing has attracted the attention of many researchers who are endeavoring to address the issue of lack of cohesion in students' writing, especially in those countries, where English is taught as a foreign language.

How to make a sentence convey a complete and cohesive discourse has always been a problem and has attracted the attention of many scholars. Through a review of the literature on discourse cohesion, the author finds that it is of theoretical and practical significance to study the characteristics of discourse cohesion in the papers of Chinese students and international scholars in applied linguistics. In theory, the author hopes that by discussing it, more researchers can pay attention to discourse cohesion and makes Chinese students more organized and logical in English argumentative writing. In practice, by comparing cohesive devices in academic discourse abstracts by Chinese used by students and international scholars, some referential directions can be provided for Chinese students to improve the writing quality of academic papers.

II. LITERATURE REVIEW

Cohesion, as an important part of discourse, has been hotly discussed. Since Halliday put forward the cohesion theory in 1962, research on cohesion has been carried out for nearly half a century. The concept of cohesion theory was first proposed by Halliday and Hasan in 1976. Cohesion occurs when one component of the text is interpreted as being related to another component of the preceding or following sentence. The two elements combine to form a tight bond.

In order to better understand and study textual cohesion, a lot of research has been done at home and abroad. As an interdisciplinary research, cohesion theory is also widely used in various disciplines. In China, since the 1980s, many linguists and scholars have made remarkable contributions to the development of cohesion theory. Hu [4] expanded the scope of structural cohesion and proposed cohesive means at the phonetic level: intonation and speech pattern. Zhang [5] further explores the preconditions for textual coherence and puts forward some views on the relationship between the use of cohesive devices and textual coherence. In empirical studies, Chinese scholars focus on certain cohesive devices, such as referential cohesion, conjunctive adverbs and

conjunctive words. According to Pan and Feng [6], Chinese English learners use fewer cohesive devices than native English speakers, and some research results are inconsistent. As a result, the results are inconsistent due to different subjects, tools, and variables. But at least, it shows that Chinese English learners' textual cohesion does have obvious characteristics, which is worthy of further study. Combined with the characteristics of discourse analysis, cohesion theory has been widely used in English translation. Scholars use cohesion theory to investigate translators' translation styles, explore translation methods, and identify the characteristics of the English translation. For example, Xu [7] used cohesion theory to study the development of translated English. Cohesion, as an interdisciplinary study, has been studied and linked to a variety of different factors.

Discourse cohesion plays an increasingly important role in English teaching and academic research. Scholars have been drawn to this theory and have made significant contributions to empirical research in this field. Writing is a way for English learners to express their opinions. The coherence of a text depends to a great extent on the cohesion of a text. Darweesh [8] found that students use textual cohesion to organize and clarify their essays, and the number of textual cohesion used in an essay also affects the quality of the essay. High-quality articles are used more cohesively Equipment. Some scholars have investigated the application of discourse cohesion in political speeches and found that it can improve the smoothness of discourse, the coherence of speech, and the authenticity and authenticity of interpretation [9]. To sum up, textual cohesion is an interdisciplinary study, which is linked to many other aspects. However, textual cohesion research in English writing still has the following problems: First, there are few studies on abstracts of academic papers in recent years, and Chinese scholars lack fresh samples on the use of cohesive devices. Second, in terms of research methods, most research methods are commonly used single corpus and sample analysis, which lacks comparison.

III. THEORETICAL BASIS

Cohesion refers to the way words, phrases, sentences, and paragraphs are connected to create text with structure and a logical meaning from beginning to end. The publication of Cohesion in 1976 marked the origin of cohesion theory. According to Halliday and Hassan [10], cohesion arises when the interpretation of one component of a text depends on the interpretation of another component. Therefore, as long as the phenomenon of one content in discourse requires the explanation of another content, it can be considered as cohesion. Cohesion exists both inside and outside the sentence boundaries.

According to the classification of Halliday and Hasan [2], cohesion can be divided into two types: lexical cohesion and grammatical cohesion. Lexical cohesion includes reiteration, synonymy, hyponymy, and collocation; Grammatical cohesion contains reference (includes personal pronouns, demonstratives, and comparisons), substitution, ellipsis, and conjunction. These cohesive devices provide us with direct and clear linguistic indications, which are suggestive and conducive to the production and understanding of texts. Lexical cohesive play an indispensable role in making a test logical and natural, which appears widely in every section of

academic papers. But in this paper, we only focus on the distribution of grammatical cohesion.

Reference can be identified as a case, namely, an element cannot be semantic interpretation, unless it is a reference to the text of another element. Pronouns, articles, indicators, and comparators are all referential means of referring to things in linguistic or situational texts. Reference may either be exophoric or endophoric.

Substitution is the replacement of one item in the text with another to avoid duplication. The difference between substitution and reference is that substitution refers to the relationship between words, while reference refers to the relationship between meanings. There are three types of substitutions: nominal, verbal, and subordinate. Noun substitution is the substitution of a noun or group of nouns with another noun. Verb substitution is the substitution of a verb or verb phrase with another verb. The verb element used to replace an item of this type is "do". Clause substitution is replacing a clause with "so" or "not".

Ellipsis is the process of omitting an unnecessary item, already mentioned in the previous text, without replacing it. Because the omission occurs within the text, it is generally considered an anaphoric relation. When an ellipsis occurs, items that have been omitted from the text structure can still be understood. Like substitution, there are three types of ellipsis: nominal ellipsis, verbal ellipsis, and clause ellipsis. In nominal ellipsis, the noun is dropped. Verb ellipsis includes the omission of verbs. Clause ellipsis occurs when a clause is omitted.

Conjunctions are the means of connecting sentences or clauses in a discourse. In other words, they organize the text in some logical order that makes sense to the reader or listener. There are four types of conjunctions, namely additive conjunctions, adversative conjunctions, causal conjunctions, and temporal conjunctions. Additional conjunctions join units with the same semantics. adversative is used to express an opposite result or opinion. A causal conjunction expresses an effect, cause, or purpose. Temporal conjunctions indicate the chronological order of events.

IV. METHODOLOGY

A. The Corpora

The study employs both qualitative and quantitative approaches, comprising frequency counts and text analysis. Two self-compiled corpora were compared in the present study: the Chinese Student Writer (CSW) corpus and the Journal Writer (JW) corpus. The CSW corpus is composed of 20 selected abstracts submitted to the 47th International Systemic Functional Congress (ISFC 47) by Chinese students. The JW corpus included 20 abstracts in empirical research articles from the Journal of Applied Linguistics which is one of the most authentic journals in the field of linguistics. In this paper, these questions are expected to be solved:

1) What is the distribution of cohesive devices in academic discourses?

2) What is the difference between the CSW corpus and the JW corpus in terms of the overall distribution of grammatical cohesive devices?

3) What is the difference between the CSW corpus and the

JW corpus in terms of the concrete distribution of grammatical cohesive devices?

B. Method and Data Coding

The paper aims to investigate the use of grammatical cohesive devices, not considering lexical cohesive devices. In categorizing cohesive devices, we employed the table of cohesion adapted from Halliday and Hasan [2]. Each of the tables has the same column such as reference items (personal, demonstrative, and comparative), substitution (nominal, verbal, and causal), ellipsis (nominal, verbal, and causal), conjunction (additive, adversative, clausal, and temporal).

Based on the taxonomy proposed by Halliday and Hasan [2], we first build an annotation framework in UAM Corpus Tool version 3.3 and manually identify and classify the use of cohesive devices in the UAM Corpus Tool. Then UAM Corpus Tool tabulates the cohesive devices used and calculates the occurrence of each category of cohesive devices automatically. Finally, we evaluate the coherence of the texts and interpret the data.

V. RESULT AND DISCUSSION

The Overall distribution of grammatical cohesive devices in the corpus is presented in Table I.

TABLE I: THE OVERALL DISTRIBUTION OF COHESIVE DEVICES

Cohesive Device	CSW	Percentage	JW	Percentage
Reference	263	48.26%	196	50.52%
Substitution and Ellipsis	3	0.55%	1	0.26%
Conjunction	279	51.19%	191	49.23%
Sum	545	100%	388	100%

The grammatical cohesive devices are divided into four types: reference, ellipsis, substitution, and conjunction. Considering the special features of academic discourses, we combined the category "Substitution" and "Ellipsis" into one. According to Table I, there are three categories of cohesive devices in the corpus. From the Table, we can see that Chinese student writers employ it 545 times, which is more than Journal writers who use it 388 times. In the Chinese Student Writer (CSW) corpus, it can be found that the cohesive device "Conjunction" occurs most frequently (279 times) among all, accounting for 51.19%. The category "Reference" occupies the second most usage of 263, whose percentage among all is 48.26%. Besides, there are only three substitutions and ellipsis used in the students' writing. In the Journal Writer (JW) corpus, the category Reference appears 196 times, ranking first with an account of 50.52%. The grammatical cohesive device conjunction ranks second 191 times, taking a percentage of 49.23%. And the category of Substitution and Ellipsis occurs once only among the journal writer corpus. Next, we will analyze the concrete usage of each grammatical cohesive device in terms of their subcategories and try to figure out the normal usage of them.

A. Reference

Reference can be identified as a situation in which one element cannot be semantically interpreted unless it is referred to another element in the text. Pronouns, demonstratives, and comparatives are used as referring devices to refer to items in linguistic or situational texts.

Table II shows the distribution of all types of references.

TABLE II: THE DISTRIBUTION OF REFERENCE

Types	CSW	Percentage	JW	Percentage
Pronominals	103	39.16%	85	43.37%
Demonstratives	70	26.62%	75	38.27%
Comparatives	90	34.22%	36	18.37%
Sum	263	100.00%	196	100.00%

As can be seen, the Chinese Student Writer (CSW) corpus and Journal Writer (JW) corpus were discovered to have used personal, demonstrative, and comparative references. The personal reference rank first in the Chinese Student Writer (CSW) corpus and journal writer (JW) corpus, which separately occurs 103 times and 85 times, accounting for 39.16% and 43.37%. Demonstrative reference was the second most frequently used by the journal writers (75 times), taking a percentage of 38.27%. However, it accounts for 26.62% by appearing 70 times, ranking third in the Chinese Student Writer (CSW) corpus. The comparative reference occurs 90 times in the Chinese Student Writer (CSW) corpus, accounting for 34.22%, and only appears 36 times in the Journal Writer (JW) corpus with an account of 18.37%. Generally speaking, the reference device is used more frequently by Chinese students than international journal writers.

In terms of personal reference, both Chinese student writers and journal writers intend to use it(30/8), its(17/4), they(11/3), them(2/3), their(16/20), I(0/7), my(0/2), we(17/20), us(1/1), our(4/4) and one(5/5). (the times appeared in CSW/the times appeared in JW).

It is found that noun of the second person is used in the abstracts of academic discourse, which demonstrates academic discourse is objective and They are preferential to using the third person "it" to reduce invalid repetition and make the discourse united.

Example 1:

1) Third, I discuss some important issues arising from this approach and, finally, outline what may be gained by *it*.

2) The 'trans-' turn in language studies illuminates human communication as the coordination and interpretation of a vast array of semiotic resources that are entangled with language in fluid and unpredictable ways. *It* also highlights the current era of globalization in which communication occurs with ever-increasing rapidity among ever-expanding audiences

3) Yet, this work is limited because *it* lacks a deeper consideration of the sociolinguistic literature on African American Language (AAL).

Self-mention can be found used by Chinese student writers and journal writers. However, we find that the Chinese student writer didn't use the first person "I" to refer to himself. Instead, they hide in the cover of "we" for the possible reason that Chinese tradition encourages cooperation and humility. Yet the situation turns quite different in the Journal Writer Corpus. They use "we" as well as "I", which indicates their full confidence and responsibility in their essay.

Example 2:

1) *I* argue that such a redefinition of SE would best be implemented in a 'register approach' which shifts the emphasis from a monolithic view of language to a register-

sensitive view thus acknowledging the fundamental functional diversity of language use.

2) *I* show how this evidence questions not only his interpretation of these expressions but also his Lakoff and Johnson (1980) inspired analysis.

3) *I* draw on evidence from a large corpus in order to show collocational and phraseological evidence around what Lee identifies as metaphors.

In terms of demonstrative reference, the distribution of each item is as follows: this (41/38), these (11/20), that (9/14), and there (6/3). (the times appeared in CSW corpus /the times appeared in JW corpus). It is found that the pattern "this paper" "this research" "the article" and "this study" has been frequently used by Chinese student writers and journal writers, which appears 23 times in the Chinese student writer corpus and 14 times in the Journal writer corpus, showing that both of them are intended to use demonstrative references to make readers focus on the approaches, the research objects, theory basis as well as the findings in the papers.

Example 3:

1) ***This study*** uses the combination of the qualitative and quantitative approaches to compare and analyze the similarities and differences in the use of "we".

2) ***This paper*** examines how three of the key chemical formalisms used in secondary school chemistry organize their meaning.

3) ***This research*** draws upon the insights of Systemic Functional Linguistics (Halliday & Matthiessen 2014) and newly contrives the thematic intertextuality discursive frame of reference integrating Lemke's (1983) thematic system and Thibault's (1991) intertextual discursive frame.

In terms of comparative reference, there is a huge contrast between the CSW corpus and the JW corpus, which was used 90 times in the CSW corpus but only 36 times in the JW corpus. The distribution of each item are as follows: same (5/0), similar (1/1), other (11/1), different (19/3), similarly (1/0), so (0/1), such (3/2), differently (1/0), better (1/2), more (16/21), less (1/1). (the times appeared in CSW corpus /the times appeared in JW corpus). From the distribution, we can see that some comparative references frequently used by Chinese student writers hardly appeared in the Journal Writer corpus, like same, different. Chinese student writers use them to illustrate their research objects and selected fields.

Example 4:

1) The present paper carries out a comparative study of news values constructed by Chinese and American media on China's air pollution, with the aim to explore ***different*** China's images constructed by these two media.

2) This paper is to explore the ***different*** translational styles of translations of the Poem Pipa Xing (琵琶行) from the perspective of text complexity within Systemic Functional Linguistics.

3) The Textual-level analysis compares a popular-science text and its corresponding science text by the ***same*** scientist Stephen Hawking (2001) on black holes, followed by the intertextual analysis of nine Intertextual Units consisting of the excerpts from the ***same*** popular-science text and represented scientific sources.

Besides, we find that both Chinese student writers and journal writers are using the adjective comparatives with "more" ahead or "er" as ending, like more objective, more frequently, lower, higher. And this kind of comparative reference is usually used in the conclusion section to explain the results found in this paper.

Example 5:

1) However, in addition to the most frequently used pragmatic function of "explaining procedure", the other four functions are ***more frequently*** used in the academic discourse of Linguistics.

2) It is found that in terms of distribution structure, the proportion of monoglossic resources in China Daily is ***higher*** than that of heteroglossic resources, which means that China has sufficient confidence in marine conservation.

3) In terms of distribution evenness, the distribution of engagement in *The Times* is more balanced because the proportion of engagement resources is ***closer***.

In the discussion of reference used in two corpora, we mainly talk about the concrete distribution of each item of it, that is personal reference, demonstratives, and comparatives. From the data, we find the frequent pattern, common co-occurrence of some expressions as well as some differences among the writing behavior of Chinese student writers and journal writers.

B. Substitution and Ellipsis

Substitution occurs when an item is replaced by another item in the discourse to avoid repetition while ellipsis is the process of omitting an unnecessary item, which has been mentioned earlier in a text and replacing it with nothing. It is similar to substitution because "Ellipsis is simply substitution by zero".[4] In the process of coding data, we find that there are only a few substitutions and ellipsis used in abstract writing. Therefore, we combined the two cohesive devices into one discussion. In the Chinese Student Writer corpus, there are three substitutions used, one of which is the nominal "one", and the other is the verbal "do so". In the JW corpus, the only verbal substitution "do so" was used by journal writers for once. They use those cohesive devices to echo the same expression appearing ahead without writing it again, which fits the requirement of abstract—concise and accurate.

Example 6:

1) Setting pictures, texts, and colors in ***one***, the front cover of the Economist fully embodies the main characteristics of multimodal discourses.

2) Similarly, we recognize resultative verbal groups (VRG) as ergative, they conform to the semantic features and behave as ergative verbs ***do*** in the two patterns.

3) In ***so doing***, the study presented a promising avenue for characterizing cross-linguistic rhetorical variations in terms of frequency, typology, and language-specific preferences.

From the finding, it can be seen that not too many substitutions or ellipsis are used in the abstract for the possible reason that the writer is supposed to record their research comprehensively and clearly. However, the appropriate use of substitution and ellipsis will make the abstract more condensed and powerful.

C. Conjunction

Conjunction words are linking devices between sentences or clauses in a text. Unlike other grammatical devices, conjunctions express the 'logical-semantic' relation between sentences rather than between words and structures [4]. In

other words, they structure the text in a certain logical order that is meaningful to the reader or listener. The general distribution of conjunction is shown in Table III.

TABLE III: THE DISTRIBUTION OF CONJUNCTION

Cohesive Device	CSW	Percentage	JW	Percentage
Aditive	239	85.66%	159	83.25%
Adversative	23	8.24%	17	8.90%
Causal	6	2.15%	6	3.14%
Temporal	11	3.94%	9	4.71%
Sum	279	100.00%	191	100.00%

As can be seen, four types of conjunction are calculated in the Chinese Student Writer (CSW) corpus and Journal Writer (JW) corpus. That is aditive, adversative, causal, and temporal. The aditive conjunction rank first in the Chinese Student Writer (CSW) corpus and Journal Writer (JW) corpus, which separately occur 239 times and 159 times, accounting for 85.66% and 83.25%. Adversative conjunction was the second most frequently used by the Chinese student writer (23 times) and journal writers (17 times), taking the percentage of 8.24% and 8.90%. The temporal conjunction ranks third in the Chinese Student Writer (CSW) corpus with 11 times and the Journal Writer (JW) with 9 times. The causal conjunction occurs 6 times in the Chinese Student Writer (CSW) corpus, accounting for 2.15%, and 6 times in the Journal Writer (JW) corpus with an account of 3.14%. Generally speaking, the conjunction is used more frequently by Chinese students than international journal writers, especially the aditive conjunction, but there seems no huge contrast in its distribution and frequency.

In terms of aditive conjunction, the number it appeared in the CSW corpus is much more than that in the JW corpus. The distribution of each item is as follows: and (126/224), also (12/1), or (13/9), that is (1/2), thus (3/2), on the other hand (0/1), as well as (4/0). (the times appeared in JW corpus /the times appeared in CSW corpus)

It can be easily found that Chinese student writers and journal writers both intend to use the conjunctive word "and" to put two juxtaposed items together. However, Chinese student writers are found to use it more than 100 times when compared with Journal writers while journal writers sometimes use the conjunction "as well as" to take the place of "and".

Example 7:

1) The paper not only explores adverbial conjunctions from the viewpoint of conversational interaction, but also provides a new angle *and* the reference of studies for readers.

2) Cross-linguistic studies are seldom undertaken in relation to the coupling patterns of attitudinal evaluations *and* their variations in different academic languages.

3) Researchers ... cohesive devices, *as well as* about their interaction with coherence and/or genre.

In terms of adversative conjunction, although the use of it in CSW corpus is more than that in CSW corpus, there is no huge contrast between them. The distribution of each item is as follows: yet (1/1), though (0/1), only (4/4), but (5/4), however (6/9), even (1/0), instead (0/2), rather (0/1), we mean (0/1). (the times appeared in JW corpus /the times appeared in CSW corpus).

The adversative conjunction which is widely used by both Chinese student writers and journal writers includes but, however. The adversative conjunctions "yet" and "though" also appeared once in a while. This kind of conjunction is usually employed when writers are trying to applaud other scholars for their excellent work in one field and prominent advancement achieved while they are going to show the limitations or development room for them, which generally speaking, is the research gap of their essay.

Example 8:

1) Experts ... increase in severity, *but* this view is not clearly reflected in more non-specialist texts.

2) Recent ... he generic structure of empirical research articles across a variety of disciplines. *However*, significantly less attention has been given to theoretical articles.

3) Emerging ... speech of Black people. *Yet*, this work is limited because it ... on African American Language (AAL).

In terms of temporal conjunction, there is no huge contrast between the CSW corpus and the JW corpus. The distribution of each item is as follows: before (1/0), first (3/7), secondly (0/3), lastly (0/1), finally (2/0), now (2/0), and conclude (1/0). (the times appeared in JW corpus /the times appeared in CSW corpus). It can be seen that Chinese student writers are more intended to use ordinal numbers to develop the abstract while journal writers do not. The reason may rest in that young writers are failed to develop the abstract in concordance with proficient scholars for a lack of confidence. Therefore, with ordinary numbers, they believe that they are at least structurally logical.

Example 9:

1) *Firstly*, the ... on the civil law; *secondly*, the differences ... thirty years; and *lastly*, the interaction ... on the evaluation of law.

2) *Firstly*, among the five ... followed by boosters, self-mention, hedges, and engagement markers. *Secondly*, a large number ...to protect its legal rights.

In terms of causal conjunction, the number of two corpora is both six, which shows there are a few sentences explaining the reasons for doing something. Writers are more intended to describe the research methods and results from a point of an objective view. The distribution of each item is as follows: so (2/0), then (1/2), therefore (0/2), for (1/1), because (2/1). (the times appeared in JW corpus /the times appeared in CSW corpus) We can see from the following examples that writers are using causal conjunctions to explain some significant supporting materials, without which the conclusion will lose its convince.

Example 10:

1) The distribution of engagement in The Times is more balanced *because* the proportion of engagement resources is closer.

2) Towards the end of syntax, we recognize event-existential as the pseudo-effective construction, *for* they typically express result and state meaning, and the only direct participant occurs post-verbally in the clause.

3) Types of constructions can *therefore* be observed in terms of process relations, and non-finiteness can be predicted with the help of this framework.

VI. CONCLUSION

This study adopts the cohesion framework of Halliday and

Hasan [2] to study the use of cohesion in the abstracts of academic terminologies by Chinese students and international scholars under the discipline of applied linguistics. This study is a combination of qualitative analysis and quantitative analysis. By determining the number and type of cohesive devices used by the two corpora (Chinese students and international scholars), the differences in the distribution of cohesive devices used by the two corpora are compared categorically. According to the results discussed above, the Chinese student writers use more cohesive devices than the international journal writers, but there is no significant difference in the frequency, type, and control of cohesive devices used by them. Although Chinese students maintain a balance with international scholars in the use and frequency of various cohesive devices, Chinese students overuse some types of cohesive devices and neglect others. Especially in the use of the conjunctive device "and", the number of Chinese scholars is much more than that of international scholars. In addition, the study found that Chinese students use more cohesive devices than international scholars in terms of personal reference. However, the use of "I" has never appeared in the corpus of Chinese students, which to some extent stems from the fact that as unskilled journal authors, they are not confident in their research results or want to leave some room when writing, so they try to use "WE" instead of "I" to hide individuals in the group and reduce their responsibility. The deep reason may be closely related to the spiritual culture inherited by China. China values the group over the individual, unity over exclusivity, gratitude and modesty. For Chinese students, although the writing process is a personal achievement, the guidance and suggestions of relevant researchers are indispensable. Therefore, Chinese students do not tend to use "I" when writing papers. At the same time, we found that previous studies indicated that Chinese students were more inclined to avoid subjective expressions such as the first person by employing objective ones such as "The paper" or "The study". However, based on existing research data, the usage of "we" has increased in terms of the performance of Chinese students. This is different from the previous results of relevant studies and also shows that Chinese English majors actively keep up with international journals and have a sense of international writing in the process of learning writing.

Reference, substitution, ellipsis, and conjunction are the four means of grammatical cohesion, each of which has its irreplaceable advantages. In the writing of the abstract, the reasonable structure of the four together will be more conducive to achieving a concise, clear, and powerful effect. This paper investigated the use of cohesive devices in academic abstracts by Chinese students and international scholars. Based on the results, we suggest that students pay more attention to the cohesive devices employed in essay writing, try to use more other conjunctive rather than "and" and be more confident in using the first person when possible. We hope the essay can encourage students to pay attention to the appropriate use of cohesive devices in their thesis writing, consciously take the international writing practice as guidance, improve their writing quality, and write a more standardized thesis abstract.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Ya Xu made the main work including corpus building, data analyzing and paper writing. Professor Zhang Yi provided many good suggestions and helped to revise the paper. All authors had approved the final version.

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