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A Comparative Study of the Frequency of the Cohesive Devices in Argumentative Writing by Non-English-Majors and Native Speakers

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Abstract

Various factors could affect writing quality, and the use of cohesive devices is presumably one of them. To investigate the frequency of cohesive devices used by Chinese college students and native English speakers and the relation between the frequency of cohesive devices and writing quality, based on cohesion theory, this study compared the frequency of cohesive devices contained in each T-unit in 120 writing samples. Through AntConc 4.2.4, TreeTagger 3.0, L2SCA, Mann-Whitney test, and Spearman's rank correlation coefficient analysis, the frequency of cohesive devices was counted, and their relations to writing quality were rated. It was found that: (1) there were significant differences in the frequency of reference and conjunction used by the freshmen and native speakers. (2) Only the frequency of conjunction was weakly related to writing quality. The reasons for the differences mainly involve a colloquial tendency in written language, the native transfer of Chinese, students' poor critical thinking ability, the characteristics of Chinese and English, limited vocabulary, and weak ability of paraphrasing.

Keywords

Comparative study; cohesive devices; argumentative writing; non-English-major freshmen; native speakers

1. Introduction

English writing ability is one of the indispensable abilities to spread traditional Chinese culture in English. The appropriate use of cohesive devices is conducive to the success of English compositions. Since the 1960s, many foreign and domestic linguists have studied cohesion theory. Among them, the publication of *Cohesion in English* by Halliday and Hasan (1976) marks the birth of cohesion theory. In this book, they see cohesion as a semantic concept, and cohesion can be divided into five types: reference, substitution, ellipsis, conjunction, and lexical cohesion.

In view of the application of cohesion theory in English writing, many experts have done lots of research in recent years, which is mainly divided into diachronic and synchronic research. Diachronic study includes large-sample study (Crossley et al., 2016) and case study (Zhang & Zhang, 2023; Zhang & Zhang, 2025; Abdi et al., 2025; Abdi & Wind, 2025).

In terms of the comparison of cohesive devices, Wang (2015) identified significant differences between Chinese and English in reference, conjunction, and lexical cohesion, with an overuse of certain devices and a restricted repertoire of conjunctions characterized by frequent repetition among Chinese students. Liu and Qu (2022) reported that

conjunction was the most substantial difference between English and Chinese grammatical cohesive devices. Li (2023) found that reference was the most frequently used in English news, whereas Chinese news tends toward ellipsis. These findings illustrate that the existing literature on the comparison of cohesive devices by Chinese students and English speakers has yet to arrive at a unified conclusion.

This study aims to determine whether significant differences exist between the two groups in the frequency of cohesive devices, and to examine the relationship between the frequency of cohesive devices and writing quality. On the basis of these findings, the study seeks to provide pedagogical guidance for students to refine their writing and for college English teachers to optimize their writing instruction.

2. Research Questions

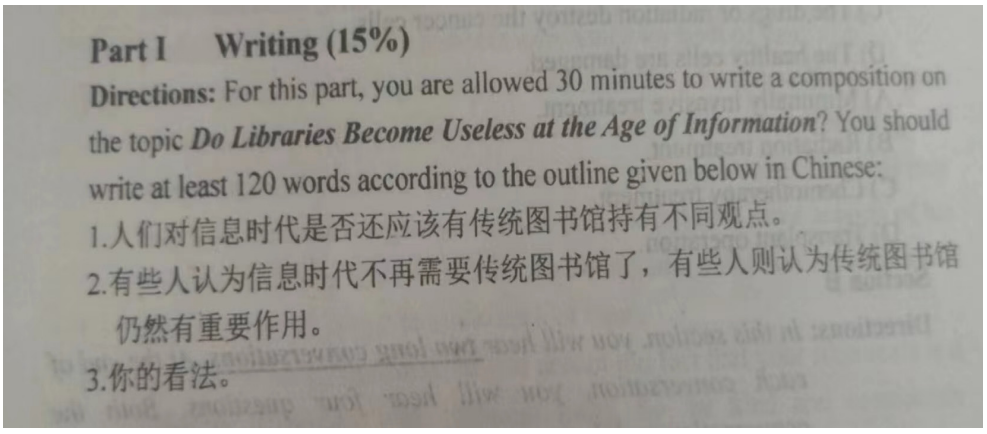
In order to examine the use of cohesive devices in argumentative essays by non-English-major freshmen, the following two questions are to be addressed:

Firstly, what are the differences in the frequency of the use of cohesive devices in argumentative essays by non-English-major freshmen and native speakers?

Secondly, what is the relationship between the frequency of the use of cohesive devices and writing quality?

3. Data Collection

In this study, 60 essays written by non-English-major freshmen are chosen from their final exam to complete in 30 minutes. The topic is shown in Figure 1. The compositions are reviewed by three college English teachers (Kendall's W=0.689) who have been teaching for more than 10 years. The scoring criteria conform to CET-4. Therefore, the average score was taken as the final score, with two decimal places.


Part I Writing (15%)

Directions: For this part, you are allowed 30 minutes to write a composition on the topic *Do Libraries Become Useless at the Age of Information*? You should write at least 120 words according to the outline given below in Chinese:

1.人们对信息时代是否还应该有传统图书馆持有不同观点。

2.有些人认为信息时代不再需要传统图书馆了，有些人则认为传统图书馆仍然有重要作用。

3.你的看法。

Figure 1. The direction of the final exam.

The reference corpus is selected from IELTS Task 2 model essays. After browsing the books and websites, 65 texts are collected. 26 texts are examiner-written model essays for Task 2 from the Cambridge IELTS Official Authentic Practice Papers 4 to 18; 18 are from *Writing for IELTS* published by Collins, drawing on the "additional model essays" and "model essays" sections for Task 2; 11 are from the website IELTSfreeway.com, selected from the "IELTS Essay Samples Band 9" section; and 10 are model essays provided in the "250+IELTS Essay Questions" section.

4. Research Methods

A quantitative research method was used. Based on Halliday and Hasan's cohesion theory (1976), five cohesive devices are regarded as the indices. Because keywords have been given, and there were no students who digressed from the subject, collocation was negligible. The frequency of cohesive devices is calculated as the number of occurrences of cohesive devices divided by the number of T-units. L2 Syntactic Complexity Analyzer (L2SCA) is utilized to calculate the number of T-units. For the extraction of personal reference, demonstrative reference, and substitution, AntConc 4.2.4 is used, supplemented by manual checking. Comparative reference, ellipsis, and conjunction are

counted manually. For reiteration, TreeTagger 3.0 is first used to tag parts of speech, followed by manual selection. SPSS 26.0 is used for data analysis.

5. Results and Discussion

5.1 Results

5.1.1 Differences in the frequency of cohesive devices in argumentative essays by non-English-major freshmen and native speakers

Table 1. The comparison of the frequency of major cohesive devices in non-English-major freshmen's and native English speakers' argumentative writing

Cohesive devices	Sample	M (P_{25}, P_{75})	Two-sample rank-sum test	
			Z	p
Reference	Freshmen	0.40 (0.26, 0.56)	-7.174	.000***
	Native speakers	1.04 (0.69, 1.40)		
Substitution	Freshmen	0.00 (0.00, 0.00)	-1.653	.098
	Native speakers	0.00 (0.00, 0.00)		
Ellipsis	Freshmen	0.00 (0.00, 0.00)	-.514	.607
	Native speakers	0.00 (0.00, 0.00)		
Reiteration	Freshmen	1.29 (1.11, 1.56)	-.053	.958
	Native speakers	1.33 (1.06, 1.66)		

Sample	Freshmen		Native speakers			
Cohesive devices	M	SD	M	SD	t	p
Conjunction	0.54	0.21	0.64	0.25	-2.47	0.015*

Notes. p<0.05*, p<0.01**, p<0001***

From Table 1, the frequency of reference and conjunction is significantly different (z=-7.174, p=.000; t=-2.47, p=0.015). For reference, the value of native speakers (M=1.04) is much higher than that of freshmen (M=0.40). This is the same finding as Xu (2000) and Wang (2015). However, the results of Reid (1992) and Na (2011) are totally different. Concerning conjunction, the frequency of native speakers exceeded that of freshmen (t= -2.47).

Table 2. The comparison of the frequency of specific cohesive devices in non-English-major freshmen's and English native speakers' argumentative writing

Cohesive devices	Sample	M (P_{25}, P_{75})	Two-sample rank-sum test	
			Z	p
Personal reference	Freshmen	0.25 (0.13, 0.33)	-4.405	.000***
	Native speakers	0.50 (0.23, 0.85)		
Demonstrative reference	Freshmen	0.07 (0.00, 0.13)	-6.825	.000***
	Native speakers	0.29 (0.19, 0.43)		
Comparative reference	Freshmen	0.07 (0.00, 0.13)	-4.456	.000***
	Native speakers	0.14 (0.08, 0.25)		

Table 2 Continued

Cohesive devices	Sample	M (P_{25}, P_{75})	Two-sample rank-sum test	
			Z	p
Additive	Freshmen	0.09 (0.00, 0.13)	-3.856	.000***
	Native speakers	0.14 (0.07, 0.24)		
Adversative	Freshmen	0.11 (0.08, 0.18)	-1.372	.17
	Native speakers	0.16 (0.08, 0.23)		
Causal	Freshmen	0.11 (0.00, 0.22)	-2.398	.016*
	Native speakers	0.15 (0.08, 0.29)		
Temporal	Freshmen	0.14 (0.00, 0.27)	-1.576	.115
	Native speakers	0.09 (0.07, 0.15)		
Repetition	Freshmen	1.16 (1.00, 1.49)	-2.713	.007**
	Native speakers	0.97 (0.80, 1.42)		
Synonyms and near-synonyms	Freshmen	0.00 (0.00, 0.00)	-7.891	.000***
	Native speakers	0.15 (0.08, 0.25)		
General word and subordinates	Freshmen	0.03 (0.00, 0.13)	-1.366	.172
	Native speakers	0.08 (0.01, 0.14)		

Notes. p<0.05*, p<0.01**, p<0001***

By Table 2, there were significant differences in personal (z= -4.405, p=.000), demonstrative (z= -6.825, p=.000), and comparative reference (z= -4.456, p=.000). Moreover, the frequencies of the use of these indicators for native English people are higher than those for Chinese students. For conjunction, significant differences were observed in additive (z= -3.856, p=000) and causal (z= -2.398, p=.016). The values for them for native speakers were higher than those for freshmen. As to reiteration, significant differences were found in repetition (z= -2.713, p=.007) and synonyms and near-synonyms (z=-7.891, p=0.000). The frequency of repetition in freshmen's composition is higher than that in native speakers' essays, but the frequency of synonyms and near-synonyms appears lower.

5.1.2 Correlation analysis between the frequency of cohesive devices and writing quality

Table 3. Correlation analysis between the frequency of cohesive devices and writing quality

Index	Correlation coefficient (r)
Reference	.024
Substitution	.169
Ellipsis	-.067
Conjunction	.277*
Reiteration	-.071

Note. *p<0.05

Table 3 shows that only the frequency of conjunction is slightly related to writing quality (r=.277, p<0.05). Some studies also suggested a weak correlation, such as Liu (1999), Lu and Zhang (2008), and so on. However, some studies have shown that there are more cohesive devices in high-score compositions than low-score compositions, such as Neuner (1987), Pan (2008), and so on.

5.2 Discussion

5.2.1 Reference

There are three reasons for this discrepancy. The first reason is that Chinese college students have a colloquial tendency in written language (Wen et al., 2003). The colloquial expression of written language involves two parameters: the representation of the reader/author and the vocabulary distribution of different word frequency levels. The first parameter involves first and second personal pronouns. Through calculation, it is found that freshmen tend to use first and second personal pronouns (frequency is 0.58 and 0.28), and native speakers are more likely to use third personal pronouns (first personal pronoun frequency is 0.18 and second is 0.03). Thus, freshmen have a colloquial tendency in writing.

The second reason is the native transfer of Chinese, which means differences in symbols. Lian (2010) pointed out, English often use pronouns to avoid repetition; Chinese are prone to repetition. For example, "Hence, I think we still need libraries at the age of information. Libraries can provide a surrounding to study, and can protect our eyes. The libraries still have important significant." "Libraries" appears three times with the same meaning, yet neither personal nor demonstrative reference is used.

The third reason is linked to students' poor critical thinking ability. When talking about the advantages and disadvantages of traditional libraries, some students use adversative conjunctions to compare the advantages of reading traditional books and e-books, without using comparative forms. In addition, some freshmen only write the advantages of traditional books or e-books, which is related to students' critical thinking ability. When making a judgment on an issue, some students merely think of various advantages of it and list many points in their essays, while others refer to the various advantages of e-books to support their argument. Consequently, these students do not analyze the problem from multiple perspectives, so the frequency of comparative reference is lower.

5.2.2 Conjunction

The difference in the frequency of conjunction is significant. The reason may be the differences in the characteristics of Chinese and English. Nida (1982) demonstrates that the biggest difference between English and Chinese is hypotaxis and parataxis. For example, there are sentences chosen from a freshman's essay. "Some people think libraries become useless and the internet will overtake them, so they think we don't need traditional libraries. Some people think traditional libraries will never have an important role in our society." When expressing two opposing views, some students tend to use "some people... some people...", which means that they adopt a paratactic approach and that requires the reader to infer the relation between the two sentences. However, a number of adversative conjunctions can be observed in compositions written by native English speakers, such as but, in fact, while, however, etc.

5.2.3 Reiteration

There is no significant difference in the frequency of reiteration, but significant differences are observed in repetition, synonyms and near-synonyms, and general words and superordinates. The main reasons are the small vocabulary and weak ability to paraphrase. Due to the keywords in the direction, "libraries", "traditional libraries", "age", "information", "lives" and so on appear in students' essays frequently. However, extensively topic-related vocabulary is rarely found in native speakers' essays employing synonyms, near-synonyms, and superordinates and general words. For example, after "scientific development" appears for the first time, subsequent references may be "scientific innovation," "make discoveries," or "scientific breakthrough".

5.2.4 Pedagogical Suggestions

Based on the analysis of the reasons, the following pedagogical implications could be drawn. First, it is advisable to emphasize the objectivity of argumentative writing, guiding college students to reduce their reliance on first and second personal pronouns and to employ third personal or demonstrative pronouns. Second, teachers could help students recognize the differences between Chinese and English, particularly conjunctions, so that they not only understand why conjunctions are pervasive in English compositions but also learn to deploy them deliberately. Third, critical thinking can be fostered during lessons. Teachers can prompt students to draw on their existing knowledge in forming judgments, engage actively in discussions, and analyze issues from diverse perspectives. Fourth, students should be encouraged to keep their own notebooks to record words. When memorizing new words, students could pay attention to the context. In addition, recording synonyms encountered in daily exercises or English news articles, with regular review, can be beneficial.

6. Conclusion

This study compares the frequency of the five cohesive devices in each T-unit and analyzes the relationship between cohesive devices and the writing quality by 120 essays written by Chinese freshmen and native English speakers. The results show that: (1) There were significant differences in the frequency of reference and conjunction. Specifically, significant differences were observed in personal, demonstrative, and comparative reference, additive, causal, repetition, and synonyms and near-synonyms. (2) Only the frequency of conjunctions was weakly related to writing quality. The reasons involve written texts towards colloquialism, negative transfer of Chinese, students' poor critical thinking ability, the differences in Chinese and English, limited vocabulary, and students' poor ability to paraphrase. However, there are some limitations. The compositions are written by non-English-major freshmen. Scholars can continue to target English major undergraduates and graduate students to guide more English teachers to enhance students' writing in the future.

References

Abdi Tabari, M., & Wind, A. M. (2025). Dynamic development of cohesive devices in English as a second language writing. *International Review of Applied Linguistics in Language Teaching*, *63*(1), 433-469.

Abdi Tabari, M., Johnson, M. D., & Gao, J. (2025). Using automated indices of cohesion to explore the growth of cohesive features in L2 writing. *IRAL: International Review of Applied Linguistics in Language Teaching*, *63*(3), 2169-2200.

Crossley, S. A., Kyle, K., & McNamara, D. S. (2016). The development and use of cohesive devices in L2 writing and their relations to judgments of essay quality. *Journal of Second Language Writing*, *32*, 1-16.

Halliday, M. A. K., & Hasan, R. (1976). *Cohesion in English*. London: Longman.

Li, T. (2023). A contrastive analysis of cohesive devices in Chinese and English news reports. *JinGu Creative Literature*, (43), 106-108.

Lian, S. (2010). *Contrastive studies of English and Chinese*. Beijing: Higher Education Press.

Liu, R. (1999). *Research methods in foreign language teaching*. Beijing: Foreign Language Teaching and Research Press.

Liu, Y., & Qu, Y. (2022). On E-C comparison of grammatical cohesive devices and translation strategies. *Journal of Chifeng University (Soc. Sci)*, *43*(8), 45-49.

Lu, Y., & Zhang, A. (2008). Use of cohesive devices in relation to the quality of compositions by Chinese college students. *Journal of Lanzhou University (Social Sciences)*, (2), 138-142.

Na, Y. (2011). Cohesive devices in CMC texts produced by American and Korean EFL writers. *Linguistic Research*, *28*(3), 743-771.

Neuner, J. (1987). Cohesive ties and chains in good and poor freshman essays. *Research in the Teaching of English*, 92-105.

Nida, E. A. (1982). *Translating meaning*. San Dimas: English Language Institute.

Pan, X. (2008). Textual cohesion in college students' English writing. *Journal of Southwest Minzu University (Humanities and Social Sciences Edition)*, *29*(S1), 247-249, 1.

Reid, J. (1992). A computer text analysis of four cohesion devices in English discourse by native and nonnative writers. *Journal of Second Language Writing*, *1*(2), 79-107.

Tabari, M. A., & Wind, A. M. (2025). Dynamic development of cohesive devices in English as a second language writing. *International Review of Applied Linguistics in Language Teaching*, *63*(1), 433-469.

Wang, Z. (2015). An analysis of development patterns of cohesive devices used in English majors' essay-writing. *Journal of Henan University of Technology (Social Science)*, *11*(3), 155-158, 176.

Wen, Q., Ding, Y., & Wang, W. (2003). Features of oral style in English compositions of advanced Chinese EFL learners: An exploratory study by contrastive learner corpus analysis. *Foreign Language Teaching and Research*, (4), 268-274, 321.

Xu, W. (2000). Cohesion, coherence, and quality in English writing. *Journal of Guangzhou University (Social Science Edition)*, (5), 71-75.

Zhang, J., & Zhang, L. J. (2025). Examining L2 students' development of global cohesion and its relationship with their argumentative essay quality. *International Review of Applied Linguistics in Language Teaching*, *63*(2), 1031-1058.