

The Use and Appropriateness of Connectives in Academic Writing

Eirini Kalaitzopoulou, University of the West of England, Bristol, United Kingdom
Athanasios Christopoulos, University of Turku, Finland
Konstantinos Siolios, University of Patras, Greece

The IAFOR International Conference on Education in Hawaii 2025
Official Conference Proceedings

Abstract

This study presents a qualitative and quantitative analysis of discourse cohesion, focusing on the use of connective devices in the academic writing of native Chinese speakers who speak English as a second language. The research investigates how discourse cohesion manifests in the range, frequency, and grammatical and syntactical appropriateness of various lexical connectors, or linkers, in relation to English proficiency. Cohesive devices serve as essential text organizers that enhance the logical structure and conceptual clarity of a written piece. The current analysis explores the use of connectives through a comparative study of fifty writing samples, aiming to determine whether there are differences in cohesive device usage among students with the same first language. Additionally, this study seeks to identify fundamental differences in the use of connectives between students with poor and strong writing skills. Previous research has indicated that L2 academic writers often overuse and misuse connectives, while also underutilizing those commonly employed in formal academic English necessary for developing arguments. The findings of this study reveal that Chinese students employ a diverse range of connectives in their writing and tend to use them appropriately. While no significant differences were observed between good and poor writing in terms of the total number of connectives, notable variances were found in the types of connectors used.

Keywords: Connectives, Academic Writing, Discourse Analysis

iafor

The International Academic Forum
www.iafor.org

Introduction

Halliday and Hasan (1976) emphasize that connectives play a crucial role in demonstrating cohesion within a text and are common features of academic writing. Their primary function is to link different parts of discourse, allowing writers to effectively construct ideas and express opinions. Therefore, the aim of this study is to examine this hypothesis by analyzing samples of academic writing produced by Chinese-speaking university students.

The research specifically seeks to examine:

- a. whether there is a relationship between the variety and suitable application of connective devices and improved academic outcomes/performance.
- b. the degree to which students utilize different types of cohesive features regarding their range and frequency.
- c. the extent to which they use these features appropriately.

As cohesion is vital for enhancing argumentation, description, and explanation in academic writing, making the text more coherent and easier to understand, analyzing the effective use of conjunctive devices can provide insights into a writer's proficiency in English. Given that Chinese students are a significant group of international students in the UK and that previous research has examined their use of cohesive devices (Field & Yip, 1992; Meisuo, 2000), this study specifically focuses on the lack of studies on writing for examination purposes.

Research shows that non-native speakers often overuse and misuse connectors in academic writing, significantly exceeding native speakers' usage (Field & Yip, 1992; Granger & Tyson, 1996; Hinkel, 2001; Meisuo, 2000). This study hypothesizes that lower-quality writing will display connector overuse and misuse. Neuner (1987) found that poorer writing tends to have a higher incidence of connector issues compared to stronger writing, with advanced writing showing a better use of conjunctive devices than lower-rated work.

Cohesive devices in writing primarily appear as conjunctions, a key category of cohesion highlighted by Castro (2004). Correctly using these devices is essential for clear writing and coherent arguments, which can be challenging for students. In UK higher education, academic writing is vital for assessments, requiring clear and well structured essays. Therefore, evaluating how well students organize their thoughts is important, with cohesion playing a key role. Cohesion involves connecting meanings across sentences (Johnstone, 2008). Understanding academic writing requires analyzing how students select and use cohesive devices.

Literature Review

Widdowson (2007) points out that written texts possess distinct linguistic and structural patterns influenced by their purpose, including reasons for writing, content, and audience, which define their genre, such as university essays. Effective academic writing requires a logical flow of ideas, linking thoughts coherently (Halliday & Hasan, 1976). Coherence demands careful planning and strategic organization of words and sentences to create connections.

Academic writing serves multiple purposes, including persuasion, argumentation, and description, often signaled by connectives like “so” “therefore” and “because” (Hulkova, 2005). Organizational patterns, such as comparison and contrast, use terms like “like” and

“unlike” to clarify relationships between ideas and enhance comprehension. The formality of an essay is reflected in its sentence structure and vocabulary, which together shape the text's register regarding its level of formality and structure.

The effect of discourse devices on writing is significant because they provide grammatical tools for achieving cohesion in discourse. Halliday and Hasan (1976) emphasize that a strong grasp of linguistic ties is essential for creating cohesive and understandable texts. Yule (1996) further supports this, highlighting that structural connections between sentences contribute to cohesion. Examining cohesion reveals the text's organization and the relationships of meaning within it. Yule (1996) also notes that cohesion arises when the interpretation of one element depends on another. Cohesive devices include reference, ellipsis, substitution, and conjunctions, which can be classified as additive, adversative, causal, and temporal, with examples like “in addition”, “so on”, “therefore”, and “furthermore”.

Halliday and Hasan (1976) emphasize that cohesion is a crucial element in text formation, alongside information and thematic structure. They argue that cohesion, rooted in semantics, relates to meaning relations within the text. When discourse elements connect, coherence occurs, creating cohesive ties that fulfill readers' predictions and enhance comprehension. Proper cohesion also minimizes redundancies; for example, in “John went to the cinema. He had a really good time,” “he” substitutes “John” in the second sentence, avoiding unnecessary repetition.

Halliday and Hasan (1976) highlight the importance of coherent and cohesive discourse in effective writing. Coherence stems from interconnected sentences using text-forming devices, while cohesion illustrates how meanings connect. Analyzing cohesion in essays reveals how students structure their texts.

Halliday and Hasan (1976) introduced the theory of cohesion, categorizing cohesive devices into conjunction, reference, ellipsis, substitution, and lexical cohesion. Conjunctions, a key category, are further divided into sub-categories: - *Additive*: Indicates additional information (e.g., “moreover”, “for example” “in addition”). - *Adversative*: Moderates or qualifies previous information (e.g., “however”, “but”, “nevertheless”). - *Causal*: Shows cause and consequence (e.g., “so”, “consequently”, “hence”). - *Temporal*: Relates events by timing of their occurrence (e.g., “first”, “previously”, “finally”).

Conjunction, as defined by Halliday and Hasan (1989), highlights relationships that are clear only when referring to other parts of the text, making logical connections visible. It links sentences and ideas semantically, guiding the reader's expectations for what follows. For example, using “however” indicates that the next statement will present a contradiction, as in: “John went to the cinema. However, he did not have a really good time”.

The role of conjunction in discourse is to represent logical relations and facilitate the analysis of texts. It connects textual meanings to the mode and context of discourse, such as academic writing (Stoddard, 1990). Conjunctive relations reflect the passage's purpose and different social purposes based on the mode or register type. Analyzing conjunctive relations is essential for understanding interpersonal meanings and the stages of argumentation. Connectives like “first” and “next” indicate argument sequence, while transition words highlight changes in the discussion. Successful arguments require logical reasoning and support, using conjunctions like “therefore” and “because” to establish connections (Hulkova, 2005).

When sentences are connected through additive, adversative, temporal, or causal relationships, these connections act as cohesive agents known as conjunctions or conjunctive adjuncts. Each type of connection has a corresponding preposition that can govern a reference item, forming a cohesive adjunct. According to Halliday and Hasan (1976), conjunctive adjuncts can be categorized into three kinds: “simple adverbs” (e.g., “but”, “then”, “so,” and “next”), “compound adverbs” ending in -ly (e.g., “accordingly”, “subsequently”), and other compound adverbs (e.g., “therefore”, “furthermore”, “nevertheless”, “besides”, “anyway”, and “finally”). Additionally, prepositional expressions like “as a result of that”, “instead of that”, and “in addition to that” serve as cohesive adjuncts as well.

Conjunctive adjuncts typically begin a sentence and encompass its entire meaning unless later renounced. While they usually set the context for the whole sentence, some may appear in the middle, linking to previous clauses. This interplay creates cohesion between sentences while also reinforcing the internal structure of individual sentences. Thus, conjunctions can limit the influence of prior conjunctions and enhance internal cohesion (Halliday & Hasan, 1976).

Halliday and Hasan (1989) found that conjunctive elements express meanings that depend on other components in discourse, linking what follows to what has been previously mentioned. When describing conjunctions as cohesive devices, the emphasis is on their function in relating successive linguistic elements rather than on the semantic relations in the language's grammar.

Few studies have explored the role of cohesive devices in essay writing, although cohesion is essential for quality writing. Research by Liu and Braine (2005) indicates that both native and non-native English speakers struggle with cohesive devices, with L2 students often relying on basic conjunctions like “but” and “so”. This reliance affects the quality of argumentative writing, particularly among Chinese undergraduates.

Neuner's (1987) study on freshman essays identified that cohesive devices, including conjunctions and reference chains, were sometimes overused or misapplied. Higher-graded essays tended to use a broader range of conjunctive devices compared to their lower-graded counterparts.

Field and Yip (1992) found that Hong Kong secondary ESL students used more conjunctive devices and in initial paragraphs, while native speakers showed more varied placement. The most frequently used conjunctions among students were adversative, followed by additive and causal types with temporal types being less frequent.

The argumentative mode of essay writing often requires adversative connectives. The study found that students misapply phrases like “on the other hand” to introduce additional points instead of contrasts. Field and Yip (1992) noted that Chinese students typically used connectives such as “moreover”, “furthermore”, and “besides” at the beginning of essays, with “besides” frequently misused, reflecting differences between formal written English and L1 English speech. Inappropriate use of conjunctive devices affects both non-native and native speakers, likely due to insufficient instruction.

Granger and Tyson (1996) identified a tendency for L2 writers to overuse additive connectives and underuse contrastive ones, possibly due to native language transfer. Non-native speakers often struggle with crucial contrastive connectives like “however” and “therefore”, which limits their argumentative depth. Effective argumentation relies on the

proper use of these devices, while an over-reliance on additive connectives undermines meaningful discourse. Similarly, Ostler (1987) noted that cohesion in languages such as Arabic can affect L2 writing.

Meisuo's, (2000) study on Chinese EFL students' writing found that conjunctions were the second most common cohesive device used in essays, following lexical cohesion. The research aimed to assess the usage and appropriateness of cohesive devices. While conjunctions were prevalent, they were often overused and misused, particularly in the categories of additive and temporal conjunctions.

A study by Hinkel (2001) examined the essay writing of native English, Japanese, and Korean speakers. It found that non-native speakers (Japanese and Korean) used conjunctions and pronouns extensively, while native English speakers used them less frequently. This suggests that L2 speakers of English may overly rely on conjunctions in their academic writing, indicating a lack of effective skill in using these cohesive devices.

A study by Castro (2004) found that students commonly use conjunctives as cohesive devices in academic writing, helping to establish logical connections between ideas. However, L2 English speakers often struggle with effective argumentation, and excessive use of conjunctions can lead to illogical discourse and informality. Therefore, students should be taught to practice these connectives in context, understand their relationships, and recognize that swapping connectives within the same category can be misleading.

Altenberg and Tapper (1998) examined the use of adverbial connectives in argumentative essays written by advanced Swedish learners compared to British university students. They identified overuse and underuse of connectives by analyzing their frequency in Swedish essays against British ones. Swedish students overused connectives such as "for instance" and "furthermore", often placing them at the beginning of sentences, while British students used them less frequently and in varied positions. The study also found an underuse of contrastive connectives like "however" and "hence", suggesting that even advanced learners struggle with effective academic writing, as evidenced by their frequent use of the informal connective "so".

In conclusion, cohesion is a vital aspect of written discourse, enhancing the logical flow of the text. For non-native English speakers, the choice and use of cohesive devices often reflect first language interference and can lead to overuse, which may obscure poor writing. This overreliance on connectives can hinder achieving true cohesion since readers can mentally create logical links without them. Therefore, while linguistic devices are crucial for academic writing, teaching effective discourse cohesion strategies is essential, as L2 learners frequently struggle with their application, and correct usage would improve cohesion in EFL writing.

Methodology

The study aimed to analyze the use of connectives as cohesive devices in academic texts written by L2 English speakers from China. A discourse analysis was conducted using both qualitative and quantitative methods, guided by Halliday and Hasan's framework (1976). This approach emphasizes the role of connectives in creating logical connections between sentences. By combining both methods, the analysis identifies general trends and offers insights into the linguistic construction of the texts. Granger and Tyson (1996) highlight the importance of using both approaches for studying L2 English speakers, comparing frequency

and semantic and syntactic usage. The chosen methodology ensures a systematic analysis, enhancing the validity and reliability of the results.

Data Source

Writing samples were collected from L2 University English learners' examination texts, focusing on academic English skills. Using examination writing provides a realistic portrayal of students' language abilities, contrasting with previous studies that used uncontrolled samples, which may compromise validity. The research employed purposive sampling (Denscombe, 2007), selecting students with the same L1 and similar writing tasks. The participants were prospective students from China, all of similar age and attending the same university in China, minimizing additional variables.

The examination targeted students who did not achieve the required score on recognized English proficiency tests. Fifty examination scripts totaling 14,000 words were analyzed, focusing on a final task where students wrote approximately 250 words on an education-related topic. This task aimed to evaluate academic writing skills through argumentation, description, and explanation, making it suitable for the study's goals.

The task was scored out of 20, and overall student proficiency was likely low since the examination targets those not meeting university entry standards. The highest grade was 14, and the lowest was 5, with the following sample distribution: Grade 5: 1; Grade 6: 4; Grade 7: 2; Grade 8: 5; Grade 9: 1; Grade 10: 9; Grade 11: 19; Grade 12: 5; Grade 13: 1; Grade 14: 3.

For this study, texts were categorized based on grades: those below 10 were deemed poor, while those with a grade of 10 or above were considered good.

Procedure

The written data samples were analyzed using discourse analysis, focusing on specific linguistic features. Instances of connectives were identified and analyzed for frequency and range, both manually and with concordance software, following the framework established by Halliday and Hasan (1976).

The handwritten data from test papers was typed for concordance analysis. Each text was assigned a code, and personal data was stored separately to ensure ethical standards. The texts were initially examined for specific connectives, followed by software analysis to determine their frequency in the corpus, providing contextual examples for both quantitative and qualitative analysis (Baker, 2006).

The concordance analysis was conducted using Wordsmith Version 6, which created a corpus from individual samples. This enabled queries to display the total instances found in the entire corpus and in each individual script.

A concordance query was conducted for each connective, displaying its occurrences in the corpus along with five words before and after. This query revealed the total number of instances and the specific texts where each connective appeared. It also provided context, allowing for analysis of the position and appropriateness of each connective's usage.

The following is a demonstration of a concordance search performed for the connective “finally”:

to check. It is useful to our education.	Finally , computer technology can make teachers
progress that something change by your hands.	Finally Internet have be used, if you want find
it is conducive to student to learning.	Finally , use computers to education will save time

The connective has been found three times in the writing corpus, with the concordance program displaying the context of each instance. It initially shows five words before and after the term but can expand to show more of the surrounding text. This feature helps to analyze the use of connectives and their relationship with grades. For example, examining the connective “finally” requires context to see if it correctly introduces the final idea in a paragraph or the entire text. Below is an expanded example of the concordance search:

Finally Internet have be used if you want find some information by computer. Right, what I would to say is computer is a tool of surfer on Internet. There are many essays, report, which you have to write if you just find reference in libraries, it may spent you too much time Look, computers make your study life easier. Consequently, computer have many advantages are linked to student’s study life. Find the way which the computers make your study life easier. (S45)

The analysis examined the frequency of connectives at the start of sentences and their overall occurrences in samples. It calculated the total number of different connectives per sample and classified their use.

Both quantitative and qualitative approaches were used in the data analysis. The quantitative aspect measured frequency and range, while the qualitative component explored the context of each connective's use. This distinction was important, as some connectives may have additional semantic functions. For example, “overall” can function as an adjective in one context and does not connect ideas, and as an adverbial connective summarizing previous conclusions in another.

file731262 it is not to say that it can give people	Overall view of advantages all the time. Instead
file731249 face a computer, It is hard for improve	Overall , we need computer for our study. It is

The qualitative approach to data analysis was used to determine the appropriate use of connectives based on their context. For instance, the analysis of the linker “finally” focused on whether it served a temporal function or introduced a concluding proposition.

Ethical Considerations

The research adhered to the ethical guidelines from the University Ethics Committee. Personal data of prospective students was typed and stored in a password-protected file to ensure confidentiality. Data was transcribed verbatim, including errors, to maintain accuracy.

Samples were coded for anonymity, and measures were taken to ensure authenticity by using samples produced under controlled conditions.

Analysis of Data

The study examined the frequency and appropriateness of connectives, “additives, adversatives, causal, and temporal”, in Chinese students’ writing tasks. The fourteen-thousand-word corpus was analyzed to classify the use of forty logical connectives based on Halliday and Hasan’s (1976) framework. It focused on which connectives appeared in the writing samples and categorized them accordingly.

The study adapted Halliday and Hasan's categorization to fit its goals, expanding their list to include all relevant connectives in academic English writing. Instead of breaking connectives into smaller categories, a comprehensive table of potential connectives was created from the writing samples. This table would help compare the variety of connectives used and enhance understanding of their overall range in the students' writing.

List of Connectives

Additive	and and nor or or else furthermore in addition additionally incidentally by the way	that is I mean in other words for instance for example likewise similarly in the same way alternatively besides	as moreover what is more
Adversative	Yet though although only but only but however nevertheless nonetheless	despite this in fact actually as a matter of fact on the other hand at the same time instead rather in contrast at least	in any case anyhow at any rate
Causal	so hence therefore consequently because for this reason on account of this as a result for this purpose with this in mind	for thus it follows on this basis arising out of this to this end in that case in such an event that being so under the circumstances	in this respect in this regard with reference to this otherwise in other respects aside from this

Temporal	then	overall	at this moment
	next	first(ly)	up to now
	after	second(ly)	at this point
	at the same time	next	to sum up
	previously	at once	in short
	before	thereupon	briefly
	finally	soon	to resume
	at last	later	last but not least
	in conclusion	meanwhile	on ...occasion
	all in all	until	to return to...

In Halliday and Hasan's categorization, connectives are divided into subcategories, with some appearing multiple times. For clarity, each connective is only listed once in this study. Certain connectives like "after that" and "before that" were simplified to "after" and "before". Outdated connectives, such as "hitherto," were removed. Additionally, connectives not found in Halliday and Hasan's list were included based on definitions from the literature review and categorized accordingly.

In the additive category, eleven out of twenty-three connectives were found in the corpus. In adversatives, eight were used, and in causals, seven out of twenty-five connectives were analyzed. Lastly, fourteen out of thirty temporal connectives were identified.

The study not only identifies the frequency and categories of connectives used but also analyzes patterns related to students' word counts, grades, and overall connective usage to differentiate between higher and lower graded work based on the variety of connectives employed.

Findings

The tables present a comparative analysis of the total and initial position of connectives in the corpus. Additive and temporal connectives were the most frequently used, with many appearing at the start of sentences.

Table 1: Total and Initial Positions of Additive Connectives in the Corpus

Additive	Total	Initial position
Additionally	2	2
In addition	10	10
For example	21	19
Furthermore	1	1
Moreover	3	3
Also	59	4
For instance	3	3
What is more	3	3
And	332	46
As	13	13
Besides	6	6

Table 2: Total and Initial Positions of Adversative Connectives in the Corpus

Adversative	Total	Initial position
However	23	21
Nevertheless	1	
Though	3	1
Nonetheless	1	
Although	7	5
On the other hand	10	10
In contrast	1	1
Instead	4	2

Table 3: Total and Initial Positions of Causal Connectives in the Corpus

Causal	Total	Initial position
So	47	24
Hence	1	1
Thus	2	2
Because	19	10
Therefore	3	3
Consequently	3	2
As a result	1	1

Table 4: Total and Initial Positions of Temporal Connectives in the Corpus

Temporal	Total	Initial position
First(ly) , At first	12	12
Secondly	7	7
Then	25	11
Next	5	1
After	11	3
Before	27	4
Finally	3	4
In conclusion	5	5
To sum up	5	5
Last but not least	1	1
All in all	3	3
Overall	5	3

The second part of the findings analyzes each student's grade, word count, and the four categories of connectives used, as shown in Table 5.

Table 5: Frequency of Connectives Used by Each Student

Student	Grade	Words	Additive	Adversative	Causal	Temporal	Total
S 1	11	284	4	3	2		9
S 2	12	322	1	3			4
S 3	11	255	4			2	6
S 4	12	329	4			1	5
S 5	12	274	5	1	4	3	13
S 6	11	251		1			1
S 7	11	283	4		1	1	6
S 8	11	284	1	1		1	3
S 9	11	253		1			1
S 10	11	270	1		1	1	3
S 11	11	220			3		3
S 12	12	272	6	1		2	9
S 13	13	213	2	1			3
S 14	14	240	5	1		1	7
S 15	14	301			2	1	3
S 16	14	261	3	1	1	4	9
S 17	12	300	3	2			5
S 18	11	291	1	1			2
S 19	11	219	1	1	1	5	8
S 20	11	297		2			2
S 21	9	331	4	1			5
S 22	8	189					
S 23	8	248	3			1	4
S 24	8	280	7		1	1	9
S 25	8	306	1		1	4	6
S 26	8	245	2	2	1	2	7
S 27	7	238			1	1	2
S 28	7	293	5	2	2		9
S 29	6	166	2	1	1		4
S 30	6	312	3	1	1		5
S 31	10	320	2	1	3	1	7
S 32	10	232	2				2
S 33	10	228	1	1	1	3	6
S 34	10	298	4	3	1	3	11
S 35	10	291	2	2		2	6
S 36	10	202	6	1	1	1	9
S 37	10	180	2	1	1	1	5
S 38	10	253	3	1	1		5
S 39	10	274	3	3	1	3	10
S40	11	380	2	1	2	3	8
S 41	11	237	5	1		2	8
S 42	11	220	2	1			3
S 43	11	333		1			1
S 44	11	229	1		1	1	3
S 45	11	205	2				2
S 46	11	232	2	1	3		6
S 47	11	254	3	2			5
S 48	6	187		2	1	2	5
S 49	6	324	1	1	1	2	5
S 50	5	205					

The third part of the findings provides a comparison of the two performance groups in their use of connectives.

Table 6: Group of Students Achieving a Score Below 10

Grade	Total students	Total connectives	additive	adversative	causal	temporal
5	1	0				
6	4	16	6	2	4	4
7	2	10	5	2	2	1
8	5	26	13	2	3	8
9	1	5	4	1		
10	9	54	22	11	9	12
Total	22	111	50	18	18	25

Table 7: Group of Students Achieving a Score Above 10

Grade	Total students	Total connectives	additive	adversative	causal	temporal
11	19	82	34	15	14	19
12	5	36	19	7	4	6
13	1	3	2	1		
14	4	19	8	2	3	6
Total	29	140	63	25	21	31

Table 8 shows the total number of connectives students used in their writing, listed from highest to lowest totals. It also includes their grades and the different types of connectives.

Table 8: Highest to Lowest Frequency per Student

Student	Grade	Words	Additive	Adversative	Causal	Temporal	Total : 0
S 5	12	274	5	1	4	3	13
S 34	10	298	4	3	1	3	11
S 39	10	274	3	3	1	3	10
S 16	14	261	3	1	1	4	9
S 12	12	272	6	1		2	9
S 1	11	284	4	3	2		9
S 36	10	202	6	1	1	1	9
S 24	8	280	7		1	1	9
S 28	7	293	5	2	2		9
S 19	11	219	1	1	1	5	8
S40	11	380	2	1	2	3	8
S 41	11	237	5	1		2	8
S 14	14	240	5	1		1	7
S 31	10	320	2	1	3	1	7
S 26	8	245	2	2	1	2	7
S 3	11	255	4			2	6
S 7	11	283	4		1	1	6
S 46	11	232	2	1	3		6
S 33	10	228	1	1	1	3	6
S 35	10	291	2	2		2	6
S 25	8	306	1		1	4	6
S 4	12	329	4			1	5
S 17	12	300	3	2			5
S 47	11	254	3	2			5
S 37	10	180	2	1	1	1	5
S 38	10	253	3	1	1		5
S 21	9	331	4	1			5
S 30	6	312	3	1	1		5

S 48	6	187		2	1	2	5
S 49	6	324	1	1	1	2	5
S 2	12	322	1	3			4
S 23	8	248	3			1	4
S 29	6	166	2	1	1		4
S 15	14	301			2	1	3
S 13	13	213	2	1			3
S 8	11	284	1	1		1	3
S 10	11	270	1		1	1	3
S 11	11	220			3		3
S 42	11	220	2	1			3
S 44	11	229	1		1	1	3
S 18	11	291	1	1			2
S 20	11	297		2			2
S 45	11	205	2				2
S 32	10	232	2				2
S 27	7	238			1	1	2
S 6	11	251		1			1
S 9	11	253		1			1
S 43	11	333		1			1
S 22	8	189					
S 50	5	205					

In this table the findings from the previous table are organized by grade, from highest to lowest, to highlight the total number of connectives used in each writing sample.

Table 9: Highest to Lowest Grades

Student	Grade	Words	Additive	Adversative	Causal	Temporal	Total : 0
S 16	14	261	3	1	1	4	9
S 14	14	240	5	1		1	7
S 15	14	301			2	1	3
S 13	13	213	2	1			3
S 5	12	274	5	1	4	3	13
S 12	12	272	6	1		2	9
S 4	12	329	4			1	5
S 17	12	300	3	2			5
S 2	12	322	1	3			4
S 1	11	284	4	3	2		9
S 19	11	219	1	1	1	5	8
S 40	11	380	2	1	2	3	8
S 41	11	237	5	1		2	8
S 3	11	255	4			2	6
S 7	11	283	4		1	1	6
S 46	11	232	2	1	3		6
S 47	11	254	3	2			5
S 8	11	284	1	1		1	3
S 10	11	270	1		1	1	3
S 11	11	220			3		3
S 42	11	220	2	1			3
S 44	11	229	1		1	1	3
S 18	11	291	1	1			2
S 20	11	297		2			2
S 45	11	205	2				2
S 6	11	251		1			1
S 9	11	253		1			1
S 43	11	333		1			1
S 34	10	298	4	3	1	3	11
S 39	10	274	3	3	1	3	10
S 36	10	202	6	1	1	1	9
S 31	10	320	2	1	3	1	7

S 33	10	228	1	1	1	3	6
S 35	10	291	2	2		2	6
S 37	10	180	2	1	1	1	5
S 38	10	253	3	1	1		5
S 32	10	232	2				2
S 21	9	331	4	1			5
S 24	8	280	7		1	1	9
S 26	8	245	2	2	1	2	7
S 25	8	306	1		1	4	6
S 23	8	248	3			1	4
S 22	8	189					
S 28	7	293	5	2	2		9
S 27	7	238			1	1	2
S 30	6	312	3	1	1		5
S 48	6	187		2	1	2	5
S 49	6	324	1	1	1	2	5
S 29	6	166	2	1	1		4
S 50	5	205					

The table below shows use of connectives from highest to lowest word counts.

Table 10: Highest to Lowest Word Count

Student	Grade	Words	Additive	Adversative	Causal	Temporal	Total : 0
S40	11	380	2	1	2	3	8
S 43	11	333		1			1
S 21	9	331	4	1			5
S 4	12	329	4			1	5
S 49	6	324	1	1	1	2	5
S 2	12	322	1	3			4
S 31	10	320	2	1	3	1	7
S 30	6	312	3	1	1		5
S 25	8	306	1		1	4	6
S 15	14	301			2	1	3
S 17	12	300	3	2			5
S 34	10	298	4	3	1	3	11
S 20	11	297		2			2
S 28	7	293	5	2	2		9
S 18	11	291	1	1			2
S 35	10	291	2	2		2	6
S 1	11	284	4	3	2		9
S 8	11	284	1	1		1	3
S 7	11	283	4		1	1	6
S 24	8	280	7		1	1	9
S 5	12	274	5	1	4	3	13
S 39	10	274	3	3	1	3	10
S 12	12	272	6	1		2	9
S 10	11	270	1		1	1	3
S 16	14	261	3	1	1	4	9
S 3	11	255	4			2	6
S 47	11	254	3	2			5
S 9	11	253		1			1
S 38	10	253	3	1	1		5
S 6	11	251		1			1
S 23	8	248	3			1	4
S 26	8	245	2	2	1	2	7
S 14	14	240	5	1		1	7
S 27	7	238			1	1	2
S 41	11	237	5	1		2	8
S 32	10	232	2				2
S 46	11	232	2	1	3		6

S 44	11	229	1		1	1	3
S 33	10	228	1	1	1	3	6
S 11	11	220			3		3
S 42	11	220	2	1			3
S 19	11	219	1	1	1	5	8
S 13	13	213	2	1			3
S 45	11	205	2				2
S 50	5	205					
S 36	10	202	6	1	1	1	9
S 22	8	189					
S 48	6	187		2	1	2	5
S 37	10	180	2	1	1	1	5
S 29	6	166	2	1	1		4

Table 11 displays ten uncommon connectives that each appeared fewer than ten times in the corpus, along with their occurrences per grade level.

Table 11: Least Used Connectives

GRADE	5	6	7	8	9	10	11	12	13	14
although		1					3	2		
besides				1		1	1	1	1	1
consequently				2						
for instance				1				1		1
hence										1
instead						1	1			
last but not least						1				
moreover								1		1
Nevertheless									1	
though										1

Table 12 displays ten of the most common connectives identified in the corpus, with each connective occurring more than ten times. It outlines the total number of instances found for each connective across different grades.

Table 12: Most Used Connectives

GRADE	5	6	7	8	9	10	11	12	13	14
and				5	3	11	20	5		2
as			2			3	3	3	1	1
because		1				5	8			1
first/firstly/at first		1		1		1	4			2
for example		6		4		3	1	4		1
however		2	1	1	1	9	5	2		
in addition			1	1		1	5	1		
on the other hand			1				7			2
so		2		1		4	7	1		1
then		2		1		2	4	2		

Each student's grade, the number of words they wrote, and the connectives they used are presented in Appendix.

Discussion

The findings analyze students' use of connectives in their academic writing, highlighting preferences and their impact on performance. While students used various connectives, some choices could hinder effective writing. A comparison with the Methodology section reveals limited connective usage, likely due to the students' overall low proficiency, as noted in prior research (Neuner, 1987). The focus on initial-position connectives may contribute to their appropriate use, as students avoided connectives in other positions, possibly due to a lack of exposure or reluctance to use unfamiliar ones.

Most students utilized a variety of connectives appropriately, with a predominant placement at the beginning of sentences, consistent with Field and Yip's (1992) findings. For example, the connective "besides" appeared six times at the start of sentences. This pattern supports the assertion that "besides," "moreover," and "furthermore" are often used initially in essays by Chinese students. Below is an example from the concordance search showing that all six instances of "besides" were in initial position.

file731265	convenient. You don't need spend much time.	Besides	this, you can get more information on computers
file731260	identify the theories we read on textbook.	Besides	teachers came from different schools can
file731232	but also makes them memorise more deeply.	Besides	, some homework can be finished by computers
file731231	the same time do some practice use online.	Besides	, my school provided 'Internet class' student
file731222	computer and make us understand easier.	Besides	, our chemistry teacher always find some
file731246	foreigner like you live in other countries.	Beside	of this, there also many software by used

Some students underestimated the importance of connectives, leading to sentences that would have been clearer if they had begun with a connective. Below is an example from a writing sample that illustrates this issue:

People know all about computers have game, for example Computer game; on-line game. Some time student cannot up the game from the computer, they will be miss the class... (S50)

The example illustrates that the two sentences could be linked with a connective to enhance the argument. The second sentence introduces a contradiction, and using an adversative connective like "however" would improve cohesion and flow: "People know all about computers have game, for example Computer game; on-line game. Some time student cannot up the game from the computer, they will be miss the class". Using "however" creates a clear connection between the sentences and demonstrates a progression of thought. While readers might make connections without a connective, using one can clarify the writer's intent, which is essential in academic writing. The observation that some students avoid connectives suggests a desire to prevent mistakes, contributing to their limited use overall. While most do use them correctly, their texts often lack sufficient connectives. Analysis shows an average of five connectives per student in texts averaging 250 words, indicating a low frequency

compared to the total corpus word count of 14,000. This highlights the need for a better understanding and application of connectives to strengthen writing skills.

This study found that not all students used connectives in their writing. Two students (student 22 and student 50, Appendix 1) did not use any connectives, and two others (student 6 and student 43) used only one. Notably, the writing sample without connectives received the lowest grade (5), while the one with minimal connectives received a grade of 8. These results support earlier research by Neuner (1987) indicating that students with poor writing tend to use fewer connectives. The study revealed that additive connectives were the most frequently used, followed by temporal and causal connectives, while adversative connectives were used less often. This contradicts Field and Yip (1992), who found that adversatives were the most common. One explanation could be that their study included also native speakers, impacting the frequency of adversatives. These findings suggest that students may struggle with argumentative writing, which requires more adversative connectives. This difficulty may be linked to their overall low proficiency, as they were prospective university students without formal English qualifications.

The most common additive connectives in the writing samples were “in addition” (10 times), “for example” (19 times), and “as” (13 times). However, “and” was the most frequently used connective, appearing 46 times. This suggests that students, especially those with weaker writing skills, often begin sentences with “and,” contributing to an informal tone that is inappropriate for academic writing. Students should avoid informal connectives like “and” and “so,” particularly at the start of sentences, and instead use formal alternatives such as “in addition,” “moreover,” and “furthermore.” This reliance on familiar informality, noted by Altenberg and Tapper (1998), may stem from their comfort with these connectives in casual speech (Field & Yip, 1992) or insufficient instruction on academic writing conventions.

In terms of adversative connectives, “however” (21 instances) and “on the other hand” (10 instances) were more common among higher-quality writing samples, suggesting better competency in argumentation. Interestingly, many low-graded students (ten or below) also used these connectives effectively, indicating that grades may not always reflect connective usage (Neuner, 1987). However, certain patterns do relate connective use to grades (as shown in Table 9). While both high- and low-performing students used “however” and “on the other hand,” the overall limited use of adversatives indicates a lack of skills to advance arguments effectively, leading students to focus more on adding information (Granger & Tyson, 1996). This trend is underscored by the heavy reliance on additive connectives in the study.

In the realm of causal connectives, the most commonly used terms are “so,” appearing twenty times, and “because,” used ten times. This prevalence suggests that students may lack the skills necessary for proficient academic writing, favoring these informal connectives over more formal options like “hence” or “therefore” (Altenberg & Tapper, 1998). For temporal connectives, “first,” “firstly,” and “at first” occur ten times, while “then” appears eleven times. However, the connective “finally” is used only four times, indicating that students often do not fully complete the sequences of ideas they begin. Of the thirty-seven temporal connectives used to introduce or continue ideas, only twenty-one were found to conclude them. Interestingly, two out of four students used “finally” to end their essays rather than previous points. For instance, in the methodology section (pg. 17), “finally” introduces a new paragraph with additional information, which disrupts text cohesion and may confuse readers about the argument's conclusion. This highlights a potential misunderstanding of how to effectively use “finally” and structure their arguments. Additionally, since the writing was

done under exam conditions, time constraints may have contributed to the lack of cohesion, with students possibly altering their content to meet word limits without considering the overall flow.

Table 6 shows that students who achieved grades 5 and 6 used a total of 16 connectives, while those with grade 8 used 26 connectives, and grade 12 students used 36 connectives. This suggests that higher-graded writing generally features a greater frequency of connectives. However, students with grades 13 and 14 used only 22 connectives, fewer than those in grades 8 and 12, and displayed less use of adversative connectives. Interestingly, the writing from grades 13 and 14 included a wider variety of connectives, with two grade 14 students utilizing all four categories, indicating a strong awareness of different connectives in academic writing. Despite the observed patterns, the writing samples from grade 14 did not show a higher frequency of connectives than expected. This could be due to inconsistent marking or other factors influencing the evaluation. Table 8 highlights that the highest frequencies of connectives were found in writing samples graded 10 or above, supporting the idea of a general trend towards more connectives in higher-graded writing. Table 10 displays the frequency of connectives alongside word counts. It was found that lower word count samples tended to contain fewer connectives; for example, the samples with 187, 180, and 166 words had 5, 5, and 4 connectives, respectively. However, the most frequent use of connectives occurred in samples with average word counts between 270 and 300 words.

There is no clear relationship between grade level and word count, as samples with the highest word counts did not consistently achieve the highest grades. For example, the ten highest word counts spanned grades 6 to 12, indicating that both good and poor writing can feature high word counts. This suggests that, despite the quantity of words used, the quality of language may not be high, possibly due to excessive vocabulary repetition and a low use of connectives. The analysis revealed that some connectives were used frequently, while others appeared infrequently. Ten less common connectives, each occurring fewer than ten times, were analyzed alongside ten more common ones, each appearing more than ten times. Most instances were found in samples graded above 10, with only five instances scattered across grades 5 to 9. Notably, grades 11, 12, and 14 showed a greater frequency and variety of less common connectives. This indicates that higher-graded students tend to use more formal connectives, which are expected in academic writing. There are exceptions, such as grade 8 scripts containing more connectives than grades 10 and 13. The lack of multiple grade 13 samples may have affected the consistency of results. Overall, while higher grades correlate with better use of less common connectives, even advanced writers tend to use them infrequently, highlighting that proficiency in formal writing varies among students.

After analyzing the least common connectives in the corpus, we examined ten more frequently used connectives for differences in usage. The findings in Table 12 show that more common connectives were predominantly used in writing samples from grades 5 to 9, reflecting informal speech patterns. Conversely, grades 10 and 11 displayed the highest use of these connectives, likely due to the larger number of samples from those grades. Furthermore, the commonly used connectives identified in this study are consistent with those found by Liu and Braine (2005). Overall, Tables 11 and 12 reveal that less common connectives are associated with higher-grade samples, while both common and well-known connectives appear in both good and poor writing.

Teaching Implications

The findings of this study highlight important opportunities for improving English as a Foreign Language (EFL) teaching, particularly in English for Academic Purposes (EAP). Many L2 students would benefit from targeted instruction on using connectives effectively in academic writing. Students often rely on informal connectives, while higher-quality writing samples feature more formal ones. This underscores the need for teaching specific connectives, which are essential for achieving proficiency. Providing direct instruction on connectives, along with clarifying the differences between academic writing in their native language versus English, can foster better understanding. By emphasizing the functions of connectives and their role in coherence and argumentation, educators can empower students to enhance their writing skills.

Limitations and Implications of the Study

While this study provides specific marking criteria for grading writing tasks, it's unclear if all samples were graded by the same examiner, which raises concerns about consistency and reliability. Some tasks may receive low grades despite effective use of connectives due to issues in other language skills, while others may be penalized for not fully meeting task requirements. A more standardized grading system could offer better insights into the relationship between connectives and writing quality.

Additionally, the study has an unequal distribution of writing samples across grades, with fewer samples for grades 10 and below, which may affect findings. The focus on students without prior English qualifications suggests generally low proficiency, potentially explaining the absence of higher-grade samples among L1 speakers. Analyzing a more balanced set of samples could reveal different outcomes.

The study examines connectives in the academic writing of a specific group of L2 English speakers, and results may not apply to other L1 groups. Exam conditions could also impact language use, leading to errors that do not reflect true abilities. Lastly, the framework used for categorizing connectives may limit findings, as different frameworks might uncover different patterns. These factors should be considered when interpreting the conclusions of the study.

Considerations for Further Study

This study assumes that the writing samples come from students with similar educational backgrounds, as they are all prospective university students of the same age. However, analyzing samples from students at various educational levels with the same first language (L1) could yield valuable insights into their use of connectives. For example, comparing pre-undergraduate, undergraduate, and postgraduate writing might reveal differences in the range and frequency of connectives. This approach could highlight how age, education level, and L1 influence English academic writing. If pre-undergraduate and postgraduate students use certain connectives similarly, it may suggest that preferences are more influenced by L1 than by educational level or language proficiency.

Conclusion

The aim of this study was to investigate the use of connectives in the academic writing of Chinese students learning English as a second language (L2). It focused on the range, frequency, and appropriateness of connectives used in their writing samples. The findings showed a variety of connectives, with additive connectives being the most frequently used, followed by temporal and causal connectives. This contrasts with previous studies that identified adversative connectives as the most common. The results align with research indicating that students with lower English proficiency often struggle with forming arguments, tending to add information rather than develop their ideas. Analysis revealed differences between higher-graded and lower-graded writing samples. Higher-graded samples featured a broader range of connectives, while lower-graded samples included more informal connectives typical in everyday speech. Generally, students used connectives appropriately in context, though there were a few instances of incorrect usage. These findings suggest implications for EFL teaching, particularly in academic contexts. Ineffective instruction may have contributed to students' challenges with connectives and cohesion. This highlights the need for improved teaching methods to help students develop their argumentation skills and understand the distinction between formal and informal connectives. Thus, further development in this area of EFL teaching is recommended.

References

- Altenberg, B., & Tapper, M. (1998). *The use of adverbial connectors in advanced Swedish learners' written English*. In *Learner English on Computer* by Sylviane Granger, 1998. London: Longman.
- Baker, P. (2006). Using corpora in discourse analysis: Continuum. *Applied Linguistics*.
<https://doi.org/10.1093/applin/amm006>
- Castro, C. D. (2004). Cohesion and the social construction of meaning in the essays of Filipino College students writing in L2 English. *Asia Pacific Education Review*, 5(2), 215–225. <https://doi.org/10.1007/BF03024959>
- Denscombe, M. (2007). *The Good Research Guide: for small-scale social research projects*, Third Edition. Open University Press, Berkshire.
- Field, Y., & Yip, L. M. O. (1992). A comparison of internal conjunctive cohesion in the English essay writing of Cantonese speakers and native speakers of English. *RELJ Journal*, 23(1), 15-28. <https://doi.org/10.1177/003368829202300102>
- Granger, S., & Tyson, S. (1996). Connector usage in the English essay writing of native and non-native EFL speakers of English. *World Englishes*, 15(1), 17-27.
<https://doi.org/10.1111/j.1467-971X.1996.tb00089.x>
- Halliday, M. A. K., & Hasan R. (1976). *Cohesion in English*. London: Longman.
- Halliday, M. A. K. & Hasan R. (1989). *Language, context, and text: aspects of language in a social-semiotic perspective*. Oxford: Oxford University Press.
- Hinkel, E. (2001). Matters of cohesion in L2 academic texts. *Applied language learning*, 12(2), 111-132.
- Hulkova, I. (2005). Linking devices in English academic prose. In *Discourse and Interaction 1: Brno Seminar on Linguistic Studies in English; Proceedings* (pp. 53-60).
- Johnstone, B. (2008). *Discourse Analysis*. Second Edition. Victoria: Blackwell Publishing.
- Liu, M., & Braine, G. (2005). Cohesive features in argumentative writing produced by Chinese undergraduates. *System*, 33(4), 623-636.
<https://doi.org/10.1016/j.system.2005.02.002>
- Meisuo, Z. (2000). Cohesive Features in the Expository Writing of Undergraduates in Two Chinese Universities. *RELJ Journal*, 31(1), 61–95.
<https://doi.org/10.1177/003368820003100>
- Neuner, J. L. (1987). Cohesive ties and chains in good and poor freshman essays. *Research in the Teaching of English*, 21(1), 92-105. <https://doi.org/10.58680/rte198715592>
- Ostler, S. E. (1987). English in parallels: A comparison of English and Arabic prose. *Writing across languages: Analysis of L2 text*, 169-185.

Stoddard, S. (1990). *Text and texture: patterns of cohesion*. Norwood, NJ: Ablex Pub. Corp.

Widdowson, H. G. (2007). *Discourse Analysis*. Oxford: University Press.

Yule, G. (1996). *Pragmatics*. Oxford: University Press.

Contact emails: eirini.kalaitzopoulou@uwe.ac.uk
athanasios.christopoulos@utu.fi
up1075089@ac.upatras.gr

Appendix

Student 1		Grade :11		Words: 284		Total : 9	
Additive		Adversative		Causal		Temporal	
Additionally	2	However	1	Thus	1		
Also	1	On the other hand	1	Because	1		
As	1	So	1				
Total	4		3		2		0
Student 2		Grade :12		Words: 322		Total : 4	
Additive		Adversative		Causal		Temporal	
And	1	However	1				
		Therefore	1				
		So	1				
Total	1		3		0		0
Student 3		Grade :11		Words: 255		Total : 6	
Additive		Adversative		Causal		Temporal	
In addition	1					To sum up	1
And	3					After	1
Total	4		0		0		2
Student 4		Grade :12		Words: 329		Total : 5	
Additive		Adversative		Causal		Temporal	
Besides	1					In conclusion	1
And	3						
Total	4		0		0		1
Student 5		Grade :12		Words: 274		Total : 13	
Additive		Adversative		Causal		Temporal	
For example	2	Although	1	So	4	To sum up	1
As	1					Then	2
And	1						
Furthermore							
Total	5		1		4		3
Student 6		Grade :11		Words: 251		Total : 1	
Additive		Adversative		Causal		Temporal	
		However	1				
Total	0		1		0		0
Student 7		Grade :11		Words: 283		Total : 6	
Additive		Adversative		Causal		Temporal	
And	4			So	1	At first	1
Total	4		0		1		1
Student 8		Grade :11		Words: 284		Total : 3	
Additive		Adversative		Causal		Temporal	
And	1	Although	1			In conclusion	1
Total	1		1		0		1
Student 9		Grade :11		Words: 253		Total : 3	
Additive		Adversative		Causal		Temporal	
		On the other hand	1			Firstly	1
						Secondly	1
Total	0		1		0		2
Student 10		Grade :11		Words: 270		Total : 3	
Additive		Adversative		Causal		Temporal	
Overall	1			So	1	Before	1
Total	1		0		1		1

Student 11		Grade :11		Words: 220		Total : 3	
Additive		Adversative		Causal		Temporal	
				So	3		
Total	0		0		3		0
Student 12		Grade :12		Words: 272		Total : 9	
Additive		Adversative		Causal		Temporal	
In addition	1	In contrast	1			All in all	1
Moreover	1					In conclusion	1
For example	1						
For instance	1						
As	2		1		0		2
Student 13		Grade :13		Words: 213		Total : 3	
Additive		Adversative		Causal		Temporal	
Besides	1	Nevertheless	1				
As	1						
Total	2		1		0		0
Student 14		Grade :14		Words: 240		Total : 7	
Additive		Adversative		Causal		Temporal	
Moreover	1	On the other hand	1			In conclusion	1
For example	1						
For instance	1						
Besides	1						
As	1		1		0		1
Student 15		Grade :14		Words: 301		Total : 3	
Additive		Adversative		Causal		Temporal	
				So	1	At first	1
				Because	1		
Total	0				2		1
Student 16		Grade :14		Words: 261		Total : 9	
Additive		Adversative		Causal		Temporal	
What is more	1	On the other hand	1	Hence	1	Firstly	1
And	2					Secondly	1
						Finally	1
						All in all	1
Total	3		1		1		4
Student 17		Grade :12		Words: 300		Total : 5	
Additive		Adversative		Causal		Temporal	
In addition	1	however	1				
For example	1	Although	1				
What is more	1						
Total	3		2		0		0
Student 18		Grade :11		Words: 291		Total : 2	
Additive		Adversative		Causal		Temporal	
In addition	1	However	1				
Total	1		1		0		0
Student 19		Grade :11		Words: 219		Total : 8	
Additive		Adversative		Causal		Temporal	
In addition	1	however	1			Firstly	1
		On the other hand	1			Secondly	1
						After	1
						Then	1
Total	1		2		0	Before	1
Student 20		Grade :11		Words: 297		Total : 2	
Additive		Adversative		Causal		Temporal	
		On the other hand	2				
Total	0		2		0		0

Student 21		Grade :9		Words: 331		Total : 5	
Additive		Adversative		Causal		Temporal	
Also	1	However	1				
And	3						
Total	4		1		0		0
Student 22		Grade :8		Words: 189		Total : 0	
Additive		Adversative		Causal		Temporal	
			0				
Total	0		0		0		0
Student 23		Grade :8		Words: 248		Total : 4	
Additive		Adversative		Causal		Temporal	
In addition	1		0			Before	1
For instance	1						
What is more	1						
Total	3		0		0		1
Student 24		Grade :8		Words: 280		Total : 9	
Additive		Adversative		Causal		Temporal	
For example	3		0	consequently	1	All in all	1
And	4						
Total	7		0		1		1
Student 25		Grade :8		Words: 306		Total : 6	
Additive		Adversative		Causal		Temporal	
Besides	1			consequently	1	First	1
						Firstly	1
						Secondly	1
						Finally	1
Total	1		0		1		4
Student 26		Grade :8		Words: 245		Total : 7	
Additive		Adversative		Causal		Temporal	
For example	1	however	1	So	1	Then	1
And	1	Though	1			Before	1
Total	2		2		1		2
Student 27		Grade :7		Words: 238		Total : 2	
Additive		Adversative		Causal		Temporal	
			0	Therefore	1	Overall	1
Total	0		0		1		1
Student 28		Grade :7		Words: 293		Total : 8	
Additive		Adversative		Causal		Temporal	
Overall	1	however	1	Therefore	1		
In addition	2	On the other hand	1				
As	2						
Total	5		2		1		0
Student 29		Grade :6		Words: 166		Total : 4	
Additive		Adversative		Causal		Temporal	
For example	2	however	1	So	1		
Total	2		1		1		0
Student 30		Grade :6		Words: 312		Total : 4	
Additive		Adversative		Causal		Temporal	
For example	3			Because	1		
Total	3		0		1		0

Student 31		Grade :10		Words: 320		Total : 6	
Additive		Adversative		Causal		Temporal	
Moreover	1			Because	3	After	1
And	1						
Total	2		0		3		1
Student 32		Grade : 10		Words: 232		Total : 2	
Additive		Adversative		Causal		Temporal	
Also	2						
Total	2		0		0		0
Student 33		Grade : 10		Words: 228		Total : 5	
Additive		Adversative		Causal		Temporal	
And	1			Thus	1	First	1
						Secondly	1
						To sum up	1
Total	1		0		1		3
Student 34		Grade : 10		Words: 298		Total : 11	
Additive		Adversative		Causal		Temporal	
For example	1	however	2	Because	1	In conclusion	1
As	1	So	1			Then	2
And	2						
Total	4		3		1		3
Student 35		Grade : 10		Words: 291		Total : 6	
Additive		Adversative		Causal		Temporal	
And	2	However	2			To sum up	1
						Next	1
Total	2		2		0		2
Student 36		Grade : 10		Words: 202		Total : 9	
Additive		Adversative		Causal		Temporal	
In addition	1	However	1	So	1	After	1
For example	1						
And	4						
Total	6		1		1		1
Student 37		Grade : 10		Words: 180		Total : 5	
Additive		Adversative		Causal		Temporal	
Besides	1	However	1	So	1	Finally	1
And	1						
Total	2		1		1		1
Student 38		Grade : 10		Words: 253		Total : 4	
Additive		Adversative		Causal		Temporal	
As	2	However	1	Because	1		
Total	2		1		1		0
Student 39		Grade : 10,5		Words: 274		Total : 6	
Additive		Adversative		Causal		Temporal	
For example	1	However	2	So	1	Last but not le	1
		Instead	1				
Total	1		3		1		1
Student 40		Grade :11		Words: 380		Total : 8	
Additive		Adversative		Causal		Temporal	
And	2	Although	1	Because	1	Then	3
				So	1		
Total	2		1		2		3

Student 41		Grade :11		Words: 237		Total : 9	
Additive		Adversative		Causal		Temporal	
And	5	Although	1			First	1
						Secondly	1
						Finally	1
Total	5		1		0		3
Student 42		Grade :11		Words: 220		Total : 3	
Additive		Adversative		Causal		Temporal	
Besides	1	On the other hand	1				
And	1						
Total	2		1		0		0
Student 43		Grade :11		Words: 333		Total : 1	
Additive		Adversative		Causal		Temporal	
		On the other hand	1				
Total	0		1		0		0
Student 44		Grade :11		Words: 229		Total : 3	
Additive		Adversative		Causal		Temporal	
As	1			So	1	To sum up	1
Total	1		0		1		1
Student 45		Grade :11		Words: 205		Total : 2	
Additive		Adversative		Causal		Temporal	
In addition	1						
As	1						
Total	2		0		0		0
Student 46		Grade :11		Words: 232		Total : 5	
Additive		Adversative		Causal		Temporal	
And	2			So	2		
				Because	1		
Total	2				3		0
Student 47		Grade :11		Words: 254		Total : 5	
Additive		Adversative		Causal		Temporal	
For example	1	However	1				
And	2	Instead	1				
Total	3		2		0		0
Student 48		Grade :6		Words: 187		Total : 4	
Additive		Adversative		Causal		Temporal	
		However	1	Although	1	Then	2
Total	0		1		1		2
Student 49		Grade :6		Words: 324		Total : 4	
Additive		Adversative		Causal		Temporal	
For example	1			So	1	Firstly	1
						Secondly	1
Total	1		0		1		2
Student 50		Grade :5		Words: 205		Total : 0	
Additive		Adversative		Causal		Temporal	
Total	0		0		0		0