International Journal of Literature, Linguistics, and Cultural Studies

Vol. 1 No.1 2025

Article **Open Access**

The Effects of Content-Based Instruction (CBI) on College Students' Writing Competence

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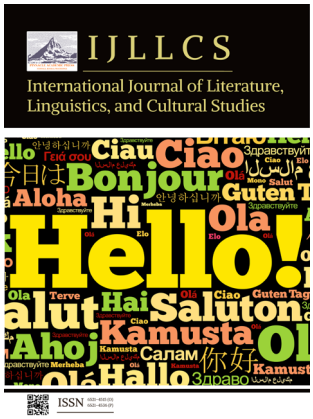

Received: 13 July 2025
Revised: 25 July 2025
Accepted: 12 August 2025
Published: 16 August 2025

Abstract: This study explores the impact of Content-Based Instruction (CBI) on enhancing college students' English writing skills. The goal was to investigate how integrating subject content into language learning can improve both linguistic ability and academic writing proficiency. An action research approach was used, with data collected through questionnaires and writing tests. One hundred and twenty freshmen from a local university in Changchun participated. The findings showed that CBI significantly improved students' overall writing skills, particularly in areas such as text coherence and organization. By engaging with authentic, content-driven tasks, students demonstrated improved ability to structure their writing according to Western academic conventions. This process helped students shift from native language (L1) thinking patterns to the more linear, logical writing structures common in English academic discourse. Additionally, CBI had a positive impact on students' writing attitudes and strategies. Students reported greater confidence in their writing, with improvements in self-assessment and revision skills. They also developed a broader range of writing strategies, including outlining and peer review, which helped reduce common writing difficulties such as structural confusion and writer's block. Overall, CBI proved effective not only in enhancing students' linguistic skills but also in fostering cognitive flexibility, preparing them for academic writing challenges.

Keywords: content-based instruction (CBI); writing competence; college students

1. Introduction

Writing is a crucial skill in both academic and professional settings. In universities, students are expected to communicate their ideas clearly and coherently through English writing. The ability to write effectively in English is not only important for academic success but also for future employment opportunities, where strong communication skills are highly valued. However, many students struggle to meet the writing expectations set for them. This is evident from the results of various standardized tests, which indicate that a significant number of college students still face challenges in their English writing competence.

There are several factors contributing to this issue within the current English writing programs in many universities. One primary concern is the traditional methods of teaching writing, which tend to focus on grammar and vocabulary rather than the development of coherent, well-structured writing. Additionally, there is often insufficient time dedicated to writing instruction, with many courses offering limited opportunities for practice. Furthermore, textbooks used in these programs often lack dedicated sections on writing skills, leaving students with few resources to improve their writing outside of class.

Beyond these instructional issues, students of English as a Foreign Language (EFL) face an additional challenge: the cultural and cognitive differences between Eastern and Western thinking patterns. In Western academic writing, there is a strong emphasis on linear reasoning and logical progression of ideas. This problem-solving or generalization approach is central to academic writing in English, where ideas are organized clearly and systematically. In contrast, the thinking style commonly found in Chinese culture tends to be more spiral, where ideas are presented in a less direct, more circular manner. This difference can lead to problems in writing, such as a lack of coherence and cohesion in the text, which can make it difficult for students to express their ideas in a structured and persuasive way.

The ability to produce clear and logically organized writing would significantly improve if these issues could be addressed. In particular, enhancing students' coherence and cohesion in writing would greatly boost their overall writing competence.

Content-based instruction (CBI) offers a promising solution to these challenges. By integrating subject matter content into language instruction, CBI helps bridge the gap between language learning and cognitive development. This approach can address the shortage of writing materials by providing students with authentic, relevant content to engage with. It also serves to spark students' interest in writing, as they are more likely to be motivated when the material is engaging and meaningful to them [1]. Additionally, CBI promotes the use of the target language in a context that mimics real-world situations, encouraging students to think in English and thereby improving their cognitive flexibility.

Finally, through exposure to authentic materials, such as academic texts, lectures, and discussions, students learn to organize their thoughts in a manner consistent with Western academic writing styles. This exposure to structured, well-organized content can improve the way students approach their own writing, helping them to develop a more linear and logical thought process [2].

This study aims to investigate the effect of CBI on improving English writing competence. The goal is to provide insights into how this approach can be used to reform and enhance university-level English writing instruction, offering students the tools they need to express their ideas clearly and coherently.

2. Literature Review

Research on Content-Based Instruction (CBI) has shown its effectiveness across a range of language learning environments [3]. In English as a Second Language (ESL) contexts, such as in the United States and Canada, various CBI models like immersion and sheltered instruction have been highly successful in enhancing language proficiency, particularly in receptive skills like listening and reading. These models immerse learners in subject-specific content while simultaneously teaching them the language needed to understand and engage with that content. This approach has not only improved students' content mastery but also their language proficiency, demonstrating the ability to learn academic subject matter in a second language [4].

Studies in these contexts have shown that students, even those who are not native speakers, can achieve content mastery comparable to their native-speaking peers while also improving their second language (L2) skills. For example, students learning psychology through sheltered CBI achieved similar content knowledge to their native-speaking counterparts, while also significantly enhancing their language competence [5]. This was corroborated by further evaluations of sheltered courses, which found substantial improvements in listening and reading skills.

In addition to language proficiency, CBI has been shown to foster critical thinking, especially in academic writing. By engaging with authentic tasks such as writing emails to native speakers, students also saw increased motivation and improved writing competence. These tasks helped students apply language skills in real-world contexts, making the learning process more relevant and meaningful.

In English as a Foreign Language (EFL) settings, such as in countries like Japan and China, research on CBI is more recent, but it still reveals positive outcomes. In Japan, early experiments with CBI sparked significant student interest, especially in courses that involved subject-related discussions conducted in English. These courses encouraged learners to engage with both language and subject matter, leading to increased involvement and enthusiasm.

In China, studies have shown that CBI can be successfully integrated into college English curricula, leading to improvements in overall language competence, particularly in listening skills. In addition to boosting language proficiency, CBI has been linked to higher motivation and reduced anxiety among students, making it a promising pedagogical approach in EFL contexts [6]. Furthermore, CBI has been found to be effective in enhancing vocabulary acquisition, a crucial component of language learning.

Regarding writing skills, a significant study conducted with Japanese high school students over nine months found that CBI was beneficial for developing writing fluency. However, the study noted that while students improved in their ability to express ideas in writing, the development of grammatical accuracy and complexity remained limited. This highlights a potential area for further exploration, suggesting that while CBI can enhance writing fluency, additional instructional strategies may be needed to address other aspects of writing, such as grammar and sentence structure [7].

Despite the widespread application of CBI in second language teaching, research focusing on its impact on writing competence, especially within the English for General Purposes (EGP) program, remains limited. This gap in the literature underscores the need for more research into the specific effects of CBI on academic writing skills. This study aims to contribute to this area by investigating how CBI can be utilized to improve college students' writing competence within the context of university-level English instruction.

3. Method

This study employed an action research methodology, utilizing both questionnaires and writing tests to collect data. The research design consisted of a preparation stage followed by two distinct cycles. Each cycle involved three phases: Planning, Action, and Reflection. Cycle I included Planning I, Action I, and Reflection I, while Cycle II consisted of Planning II, Action II, and Reflection II. Questionnaires were administered during the Preparation and Reflection II stages, and writing tests were conducted at both the Preparation and Reflection II stages.

3.1. Participants

A total of 120 first-year Chinese college students participated in this study. All participants were enrolled in the same major and were non-English majors. The participants were divided into two groups. The experimental group consisted of students who enrolled in the Content-Based Instruction (CBI) course, while the control group comprised students who participated in the Product-Oriented Approach (POA) course. Both groups were compared to assess the effectiveness of CBI in improving English writing competence.

3.2. Research Instruments

3.2.1. Questionnaire

The questionnaire, designed by the researcher, was administered twice during the study—once at the beginning (Preparation) and once at the end (Reflection II) to measure changes in students' English writing situations [8]. It used a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire was divided into two sections:

1) Personal Information: This section included demographic questions such as gender, age, study-abroad experience, and college entrance exam scores.

2) Writing Situation: This section focused on students' writing experiences, including their attitudes toward writing, writing strategies, common difficulties they encountered, and their self-evaluation of writing skills.

3.2.2. Writing Test

The writing test was conducted twice—once during the Preparation stage (pre-test) and again at the Reflection II stage (post-test). The aim of these tests was to measure changes in students' writing competence over the course of the study. The topics for the writing test were selected from the CET-4 (College English Test Band 4) to ensure the test's relevance to the students' language level [9].

The total score for each writing test was 15 points. Three teachers, all experienced in grading CET-4 writing tests, independently evaluated the essays on a computer using the established CET-4 writing rubric. The teachers were blind to the students' identities to ensure impartial grading.

3.3. Data Collection and Analysis

The data collected from both the questionnaires and the writing tests were analyzed quantitatively using SPSS 25.0.

3.3.1. Questionnaire Data

The responses to the questionnaires were analyzed to obtain descriptive statistics for each category, such as writing attitudes, strategies, difficulties, and self-evaluation. Paired sample tests and independent sample tests were conducted to compare the pre- and post-questionnaire results within both the experimental and control groups [10]. This allowed for the identification of any significant changes in students' attitudes and strategies toward writing.

3.3.2. Writing Test Data

The writing test results were analyzed using paired sample tests and independent sample tests to compare students' pre-test and post-test scores in both the experimental and control groups [11]. This analysis aimed to determine if any improvements in writing scores were due to the intervention of CBI. By comparing these scores, the study sought to understand the extent to which the CBI approach contributed to improvements in writing competence.

4. Results

The results of the study indicate that Content-Based Instruction (CBI) has a significant impact on enhancing college students' writing competence.

4.1. Findings of the Questionnaire

All participants completed the questionnaire both before and after the intervention. Paired sample t-tests were conducted on the data from both the experimental and control groups to examine whether there were any significant differences in the participants' writing attitudes, writing strategies, writing difficulties, and self-evaluations before and after the CBI intervention. The descriptive statistics of the participants' pre- and post-test results are presented in Table 1.

Table 1. Descriptive Statistics of Questionnaire Scores on the Pre- and Post-tests.

	Experimental group (N=60）		**Control group (N=60)**	
Variable	Mean	SD.	Mean	SD.
Pre-test	2.72	1.255	2.71	1.170
Post-test	3.28	1.372	2.72	1.125

Note: SD = standard deviation.

According to the descriptive results, the mean scores for the experimental group in writing attitudes, writing strategies, writing difficulties, and self-evaluations were significantly higher than those of the control group. Specifically, the experimental group's mean score improved from 2.72 in the pre-test to 3.28 in the post-test, while the control group's mean score increased only slightly from 2.71 to 2.72.

Additionally, paired sample t-tests were conducted to further analyze the improvements in the experimental group's pre- and post-test results. Table 2 presents the paired sample test data across four categories. The results for writing attitudes ($t = -15.154$, $p = 0.000 < 0.001$), writing strategies ($t = -10.482$, $p = 0.000 < 0.001$), writing difficulties ($t = -6.053$, $p = 0.026 < 0.05$), and self-evaluation ($t = -5.326$, $p = 0.033 < 0.05$) all showed statistically significant differences between the pre-test and post-test. These results suggest that the CBI writing class led to positive improvements in the experimental group's writing attitudes and the other three categories [12].

Table 2. Paired Sample Test of Questionnaire in the Experimental Group in Pre-test and the Post-test.

Category	Mean Difference	Standard Deviation	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
			Lower	Upper			
WA	-0.56900	0.11874	-0.65394	-0.48406	-15.154	9	0.000**
WS	-0.60875	0.16427	-0.74608	-0.47142	-10.482	7	0.000**
WD	-0.38333	0.10970	-0.65583	-0.11083	-6.053	2	0.026*
WE	-0.45333	0.14742	-0.81955	-0.08712	-5.326	2	0.033*

**. P < 0.001 *. P < 0.05

Note: *p < .001, SD = standard deviation, SE = standard error mean, df = degree of freedom.

In contrast, the data from the control group did not show statistically significant differences before and after the treatment ($t = 0.341$, $p = 0.0736 > 0.05$), indicating that the control group did not experience the same level of improvement (Table 3).

Table 3. Paired Sample Test of the Questionnaire in the Control Group in Pre-test and the Post-test.

	Mean	Standard Deviation	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
			Lower	Upper			
CPRE-CPOST	0.00875	0.12557	-0.04427	0.06177	0.34123		0.736

Note: *p < .001, SD = standard deviation, SE = standard error mean, df = degree of freedom.

4.2. Findings of the Writing Test

The researcher collected writing scores from both the experimental and control groups during the preparation and reflection II stages. All data were then analyzed using SPSS 25.0 to ensure the accuracy of the findings. The descriptive statistics for the writing scores are presented in Table 4.

Table 4. Descriptive Statistics of Writing Score.

	N	Minimum	Maximum	Mean	SD.
Pre-test (experiment group)	60	1	11	6.75	1.954
Post-test (experiment group)	60	4	13	7.92	1.807
Pre-test (control group)	60	3	12	6.82	1.935
Post-test (control group)	60	1	12	6.97	2.209
Valid N	60				

For the experimental group, the mean writing score increased from 6.75 in the pre-test to 7.92 in the post-test. The minimum score in the pre-test was 1, which rose to 4 in the post-test, while the maximum score increased from 11 to 13. These statistics indicate that the writing scores of the experimental group showed notable improvement. For the control group, the minimum score decreased from 3 to 1, and the mean score showed a slight increase from 6.82 to 6.97.

Furthermore, paired sample t-tests were conducted to examine the changes in both the experimental and control groups between the pre- and post-tests. As shown in Table 5, the data from Pair 1 reveal that the mean score of the experimental group in the post-test was 1.167 points higher than the pre-test score. The paired sample test ($t = -17.176$, $p = 0.000 < 0.001$) showed a significant difference, indicating that the experimental group's writing scores improved significantly through the CBI writing class.

Table 5. Paired Sample Test of the Writing Score in the Experiment and Control Groups.

	Mean Difference	Standard Deviation	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
			Lower	Upper			
Pair 1 Experiment group	-1.167	0.526	-1.303	-1.031	-17.17	59	0.000**
Pair 2 Control group	-0.150	2.106	-0.694	-394	-0.552	59	0.583

Note: **. P < 0.001.

In contrast, for the control group, the mean score of the post-test was only slightly higher by 0.150 points compared to the pre-test. However, the difference was not statistically significant ($t = -0.522$, $p = 0.583 > 0.05$).

Overall, the results from the writing test suggest that the application of CBI had a positive impact on the writing scores of the experimental group, while the control group did not show any significant improvement.

5. Conclusion

The findings of this study highlight the effectiveness of Content-Based Instruction (CBI) in enhancing the English writing competence of Chinese college students. By integrating subject-specific content with language instruction, CBI fundamentally reshaped students' approach to composition, offering a more holistic and engaging learning experience. This pedagogical approach provided students with sustained exposure to authentic, content-driven tasks, which allowed them to internalize the linear discourse patterns common in Western academic writing. In doing so, CBI helped students overcome the inherent challenges posed by their native language's spiral thinking structure, encouraging a more organized and coherent writing style.

The results demonstrated that students in the experimental group showed significant improvements in textual organization and coherence in their post-intervention writing. This shift from relying on exam-oriented, formulaic writing models to developing ideas purposefully and meaningfully illustrates the effectiveness of CBI in fostering deeper cognitive engagement with writing tasks. The learners no longer merely imitated structures but actively constructed ideas within the framework of authentic, relevant content.

Moreover, responses to the questionnaire revealed important insights into the broader impact of CBI. Students reported a marked increase in writing self-efficacy and a significant reduction in compositional anxiety. These findings suggest that CBI, by integrating meaningful subject knowledge with language practice, not only enhanced students' linguistic skills but also contributed to their cognitive flexibility. This is crucial for effective cross-cultural communication, as students became more adept at adapting their writing to meet different academic conventions.

In conclusion, CBI proved to be a powerful tool in improving both the technical and cognitive aspects of English writing. By bridging the gap between language learning and content knowledge, it enables students to develop the necessary skills for academic success and prepares them for the challenges of global communication. This approach not only enhances students' writing proficiency but also nurtures the critical thinking and adaptability needed for navigating diverse academic and professional contexts.

Funding: 2024 Supply and Demand Matching Employment and Education Development Project "Research on the Cultivation of Multidisciplinary English Talent under the Belt and Road Initiative" (Project Number: 2024032833762).

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