

An Exploration on the Cultivation of College Students' Critical thinking Ability in English Academic Writing

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Abstract: The deficiency of critical thinking ability is a common phenomenon among Chinese college students and has influenced the improvement of their academic writing skills. The author aims to solve this teaching problem by analyzing the current teaching situation with reference to the curriculum design and teacher-student challenges at present. Based on the difficulties in students' English academic writing, a comprehensive review circulation process is designed and carried out to explore the cultivation of students' critical thinking ability. Both students' scores and feedback prove its effectiveness.

1. Introduction

Writing ability is an important productive skill in language learning, and English academic writing is a skill training targeted at learners' ability to study academic subjects or carry out academic research and communication in English. However, due to its late start in Chinese higher education and great difference from general English writing, there exist quite a few difficulties. In this article, the author aims to improve the current situation with reference to the enhancement of non-English majors' critical thinking ability based on course analysis and teaching reflection.

2. Current teaching situation of English academic writing in China

Most of the Chinese universities open academic English courses for sophomores, which means a jump-start for non-English majors since generally quite a few of them haven't even passed College English Test Band Four, a certificate test on general English skills including general writing. Due to the weak foundation in English, writing has been knotty to many college students, not to mention academic writing which they have never been exposed to in general English study^[1].

What makes it worse is that due to the shortage of qualified English teachers, non-English majors in quite a few schools have to attend large-scale English classes ranging from 40 to 60 students. Therefore, how to meet the individual needs of students has been a great challenge for teachers. Nor can they successfully achieve the teaching objective with the restriction of the overall course length when they try their best to cover various language skills within just a semester's time.

The teaching outcome for academic writing is then obviously not quite satisfactory to both the students and their teachers^[2]. And many students find it hard to catch up with the class and gradually lose interest thereafter --- according to a survey with 225 engineering majors in the author's academic English classes (Year 2019 students in their third semester, Table 1). 79.1% of the students were found having difficulty in their writing study and more than one third felt even struggled as the following Table 1 shows:

Table 1 Difficulty degree of academic writing study.

Degree	Description	Number	Percentage
Not Difficult	1. Very easy	12 students	5.3%
	2. Difficult at first but manage to deal with it later	35 students	15.6%
Difficult	3. A little bit difficult	23 students	10.2%
	4. Comparatively difficult	47 students	20.9%

	5. Quite difficult	89 students	39.6%
	6. Too difficult to manage it	19 students	8.4%

While asked about their specific difficulties in writing practice (Table 2), a surprising fact was found that more than half students chose “Don’t know how to write”:

Table 2 Reasons for students’ incompetency in academic writing study.

Reasons	Number	Percentage
1. Weak foundation in English	45 students	20%
2. The content is too difficult to understand	72 students	32%
3. Not used to the teaching method	18 students	8%
4. Don’t know how to write	116 students	51.6%
5. Not interested in academic writing	139 students	61.8%
6. Other reasons	5 students	0.4%

(Note: Students are allowed to choose more than one reason.)

A targeted interview was then taken as to ask for more details about the reasons so that the real situation can be more deeply explored and analyzed. The majority of the students admitted that they were more used to the general writing teaching process. In fact, almost all of the students (221 out of 225) said that they felt confident to finish a general writing task if they had acquired enough grammar rules or vocabulary but regarded academic writing as a totally different genre in topic, expression, mood, function etc.

Therefore, when they were required to finish an academic writing, though acquired with certain knowledge about it (Table 3), 173 out of 225 students felt overwhelmed by the task and confused about the differences between general writing and academic writing (37.8%) including expression, mood and function, and puzzled about the topic (35.1%) including its unfolding, elaborating and testifying, even if they had acquired enough knowledge on academic vocabulary or document retrieval:

Table 3 What students have acquired from academic writing study.

Contents involving academic writing	Number	Percentage
1. Basic structure for a thesis	155 students	68.9%
2. Steps to finish a piece of academic writing	161 students	71.6%
3. Document retrieval	98 students	43.6%
4. Differences between general & academic writing	134 students	59.6%
5. Skills needed for academic writing	149 students	66.2%

3. Literature review for English academic writing research in China

The study of critical thinking originated in Western countries has been carried out on the correlation between writing and critical thinking as early as the early 20th century. Beaufort (2004) [3] holds that writers of academic papers should not only have solid professional knowledge, but also critical thinking knowledge. Alagozlu (2007) [3] claims that writers are willing to become drivers of critical thinking, hoping to master the use of critical thinking skills to truly and appropriately express individual ideas.

About how to cultivate critical thinking ability, there has been a continuous research on teaching academic English writing in China in the past decade with 812 pieces of theme theses found on the authorized thesis search website www.cnki.net (2023-11-01) by keyword retrieval “academic writing in English”. But compared with thousands of theses on teaching general English writing, 812 is a very small number, not to mention the fact that 447 pieces out of 812 were just published in the past 5 years.

What’s more, among these theses, there’s also research on teaching materials and teaching for English majors and postgraduates. Much of the rest is the research into language skill teaching. Consequently, when we input the keywords “English academic writing” and “critical thinking” together, there’s only 18 pieces left and fewer than 10 pieces focus on non-English majors.

Guoliang Yu ^[4] explored the combination of academic English writing teaching and critical thinking ability training among postgraduates as early as 2009. Yun Gao (2014) ^[5] analyzes the characteristics of medical professional writing course in American universities from the perspective of teaching philosophy, teaching syllabus, teaching practice and supporting system as to attach importance to the cultivation of critical thinking in professional English writing teaching in Chinese traditional medicine colleges. Peiqiu Zhang ^[6] (2016) aims to build an innovative teaching model that combines academic English courses with online resources and research-based learning based on the principle of integrating critical thinking into the discipline. Jing Wu (2020) ^[7] explores to improve students' critical thinking in the teaching of business English academic essay writing. Haixia Zhang & Feng Yang (2023) ^[8] demonstrates that inquiry community has a positive impact on critical thinking, and blended learning in academic writing is conducive to learners' efficient learning.

4. Cultivation of critical thinking ability in academic writing

As mentioned in Part 2, with limited time and energy, teachers can only correct the exercises at the language level. The score is then usually measured by syntax and grammar errors and vocabulary choice, and there is little time to focus on whether the ideas are clear and novel, and whether the paragraph arrangement is reasonable enough.

The result brought by could be a vicious circle then: students tend to equate English writing with grammar exercises and gradually lose their interest.

For this problem, now more and more schools have noticed and tried to solve it. One suggested solution is the introduction of online intelligent writing review systems into the writing part to help correct syntax and grammar mistakes so that teachers can have comparatively much more time to arrange a better way of teaching to stimulate and sustain students' interest and curiosity. Cultivation of critical thinking ability is one of the most important and effect ways.

In order to achieve the goal, the author designed a few teaching steps corresponding to the different stages in academic writing and took the students of Year 2021 in their third semester as the experimental classes (altogether 218 students with the same major as the students of Year 2019).

4.1 Primary stage --- preparation for the writing topic and theme

In a traditional writing classroom, the teacher tends to offer related materials by introducing the background knowledge, defining the main theme or even helping construct an outline for the students. Consequently, the teacher may find it easier to evaluate the writing tasks, but such style of teaching does not involve critical thinking, nor do most of the students have chances to express their individual inclination independently, let alone brainstorm ideas, their writing practice can be non-effective.

Therefore, at this stage, the author changes to select dialectical and controversial topics which can arouse students' interest and stimulate their critical thinking. The author also does not rush for quick success and immediate benefits to instill personal subjective analysis at one time, but gradually penetrates and guides students to naturally produce dialectical and logical thoughts by setting hierarchical and progressive questions.

One important point need to mention in this step is the teacher should ensure that he/she does not express any subjective leading views on the writing materials, and students should simply rely on their metacognitive knowledge to brainstorm, formulate their own views briefly, and express them freely under the democratic atmosphere created by the teacher, so as to cultivate the habit and ability of independent thinking.

Both the teacher and the students should be tolerant. When the contradictory nodes appear in the students' expressions, the teacher should make them aware of it through questions, instead of denying them and pointing out the contradictions directly, so as to adjust their thoughts and continue to elaborate. Meanwhile, the teacher should also leave enough space for the students to reflect on the difference between their choice of topic and others, whether there are innovative results. In this way, students can learn to change the perspective of their position and examine whether their ideas and arguments are clear and persuasive from the perspective of others.

A very convincing example is the famous essay Two Children Arguing about the Distance

Between the Sun and the Earth written by the ancient Chinese thinker Lietzi in the Warring States Period. In this article, the two children gave different views with their own reasons and even Confucius could not decide which was less convincing.

At this point, students work from superficial analysis to further analysis for cause exploration, and the analysis of multiple possibilities of causes enables to improve their critical thinking training.

4.2 Development stage --- ideation and text generation

In excellent writing works, strong content knowledge is the source of power to support and develop critical thinking. Therefore, in this development stage, students need to collect and sort out materials and cases that can support their arguments after class as writing materials. They are encouraged to use metacognitive strategies to plan, monitor and adjust the selection of writing materials at any time.

At the same time, teachers can provide students with bibliographies or indexes for reference, and help students obtain ways to collect information to enrich the purpose of writing content. When students encounter materials and cases that contradict their previous views, they should fully mobilize questioning thinking, discriminating thinking and factual thinking in critical thinking, so as to analyze the materials objectively by criticizing the materials rationally and understand the materials from multiple perspectives.

In this process, knowledge is constructed, and judgment thinking is formed while content knowledge is screened. The generation of writing text following by is the concrete presentation of the writer's language foundation and language application ability, and also the direct reflection of the writer's semantic, stylistic, register, social culture and other aspects.

4.3 Summary stage -- evaluation and revision

Evaluating works is also an effective way to develop critical thinking. Though online intelligent writing review systems have greatly reduced the burden of English teachers and helped correct the grammatical errors in students' writing, they cannot completely replace teacher reviews, nor can they replace the effect of class review.

Of course, these evaluation tasks are huge and onerous for the teachers, so they cannot rely on teachers alone. Therefore, we can adopt the method of group evaluation as to stimulate students' evaluation thinking and invigorate the writing classroom atmosphere. Before group evaluation, teachers can demonstrate a sample writing to the class and then require students to conduct intra-group mutual evaluation as shown in Table 4 below:

Table 4 Guidelines for group mutual evaluation.

Guidelines	Level
1. Whether the idea of the article has innovative consciousness	1 2 3 4 5
2. Whether the text paragraphs are logically organized	1 2 3 4 5
3. Whether the text style is selected properly to be in line with the author's intention and the background characteristics of the target readers	1 2 3 4 5
4. Whether the social and cultural attributes of the work are clear and what kind of writing significance it has	1 2 3 4 5
5. Whether the language expression is rich, accurate and effective, and whether the use of vocabulary sentence patterns reflects the author's complete thinking to a great extent	1 2 3 4 5

(Note: For each guideline, there are 5 levels from 1 to 5 with 5 as the highest level.)

Under the demonstration premise of teacher's comments, students follow the evaluation criteria in their group work. Through individual thinking and peer discussion, they can find the advantages and disadvantages of their own in mutual evaluation process. When they learn it, students tend to change their previous attitude of ignoring and not revising the teacher's review work, and begin to actively revise the work, and then form a more objective, accurate and dialectical evaluation thinking about others. In this way, after several exercises, students will develop a more active and better habit, and in the subsequent writing process, they will learn to repeatedly examine their arguments carefully and rationally arrange chapter structure in order to complete better works.

5. Feedback and reflection

The author spent two semesters to incorporate the training of critical thinking into the teaching part of academic writing in the fall of year 2020 and 2022. In view of the fact that the author teaches four classes with different majors in the same semester, it has little referential value to choose any two of the four classes as control group. Therefore, the teaching design adopts the form of comparing teaching classes with the same majors in different years. To this end, the author specially applied for the classes with the same majors (225 students of Year 2019 vs. 218 students of Year 2021). The students of these two years were enrolled in with similar English foundations. So the Year 2021 students were taken as control group with the experimental evaluation method of comprehensive review circulation process as Table 5 shows below:

Table 5 Comprehensive review circulation process.

Review	Condition	Feedback
1. 1 st online intelligent review	After the assignment of the writing task, without support or guidance from the teacher	Class survey
2. Teacher's review (sample review)	After the introduction of critical thinking into the topic writing	Student reflection
3. Peer review/group review		
4. 2 nd Online intelligent review		
	At the end of the semester	Personal interview + class survey

In fact, the whole review process is expected to be more like a positive circle so that the two online intelligent reviews can be compared and contrasted as to trigger the experimental students' additional critical thinking on their different or even distinct scores gained on the intelligent reviews. The following Table 6 is another survey on Year 2021 students' reflection about their two writing performances on the same academic topic:

Table 6 Feedback on comprehensive review circulation process

Q: Have you improved your writing on the topic?	Number	Percentage
1. Yes/greatly	163 students	74.8%
2. Yes/but not much	41 students	18.8%
3. No/hardly	14 students	6.4%
4. No/even worse	none	0.0%

There are altogether 3 writing tasks arranged in the whole course, which means the same number of circulations and reflections. There are also face to face interviews between the teacher and each student, with personal reflections as term summary and class survey together for feedback. The following Table 7 are some excerpts from the final class survey in January 2023 when the students finished their English academic course. A comparison between the two years' students is shown through the number and percentage:

Table 7 Class survey on academic writing (excerpts).

Q3: Are you more interested in academic topics now?	Number (2019 vs. 2021)	Percentage (2019 vs. 2021)
1. Yes/greatly	5 vs. 53 students	2.2% vs. 24.3%
2. Yes/but not much	30 vs. 101 students	13.3% vs. 46.3%
3. No/hardly	166 vs. 60 students	73.8% vs. 27.6%
4. No/even worse	24 vs. 4 students	10.7% vs. 1.8%
Q6: Do you feel more confident about academic writing now?	Number (2019 vs. 2021)	Percentage (2019 vs. 2021)
1. Yes/greatly	13 vs. 80 students	5.8% vs. 36.7%
2. Yes/but not much	95 vs. 88 students	42.2% vs. 40.4%

3. No/hardly	91 vs.47 students	40.4% vs.21.6%
4. No/even worse	26 vs.3 students	11.6% vs.1.3%
Q9: Has critical thinking helped/benefited your writing in this course?	Number (2021)	Percentage (2021)
1. Yes/greatly	161 students	73.9%
2. Yes/but not much	44 students	20.2%
3. No/hardly	13 students	5.9%
4. No/even worse	none	0.0%

For the first two choices in each question, there's an obvious rise in the number and percentage. That is, a higher percentage of students of Year 2021 became more interested in academic writing after the course and became more confident in it.

6. Conclusion

The inspiration in this teaching attempt can be concluded as follows:

6.1 The writing feedback consisting of teacher feedback, personal feedback and peer/group feedback should be advocated

The teacher's analysis of organization and structure has an obviously convincing guiding effect on the layout and overall structure of students' writing, however, peer feedback, with its relaxed and flexible discussion mode, can be superior to teacher's feedback in reducing writing anxiety, improving writing interest and developing thinking. Meanwhile, a personal feedback is necessary and requisite for the development of the student's critical thinking.

6.2 The cultivation of critical thinking ability into English academic writing teaching should be promoted

English teachers in academic writing should actively guide students to understand and master the elements and standards of critical thinking, and apply the elements and writing standards to examine the writing process and content, so as to make students' compositions more meaningful and reasonable by improving the breadth and depth of their thinking.

The importance of critical thinking in English academic teaching is obvious in cultivating thoughtful and insightful applied technical talents for the society. As an important position of critical thinking training, writing teaching, both teachers and students should pay attention to various experiences in the process and construct a more complete teaching paradigm to improve the deficiencies of current teaching.

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