

Impact of the Production-Oriented Approach (POA) on the Critical Thinking Skills of University Students in College English Courses: An Empirical Study

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Abstract: Based on the Production-oriented approach (POA) proposed by Wen Qiufang and the Paul-Elder critical thinking ternary structure (also known as The Paul-Elder Model, PEM), this paper uses a quantitative and qualitative research method to assess the critical thinking in writing skills of 49 students majoring in nursing at a university and conduct a questionnaire survey on their critical thinking and English writing. The study found that the POA-based English teaching design helped improve students' overall critical thinking and could effectively improve students' English writing skills.

Keywords: Production-oriented approach, Critical thinking in writing skills, College English course.

1. Introduction

In recent years, the development of College English courses has led to a marked improvement in the overall English proficiency of Chinese university students, but the absence of critical thinking in the integrated use of language has become more pronounced. Students are poor in critical thinking and organization and lack strong analytical, synthesizing, judging, reasoning, thinking and discursive skills, showing a worrying absence of critical thinking and intellectuality (Wen, 2006; Huang, 2010) However, the development of such skills at the university level is not an easy task. It is even more difficult for university English teachers to integrate the development of critical thinking skills into their teaching. Thus, English classes in China are mostly 'teacher-centred' and 'exam-oriented', and students' main learning experience is doing exercises, memorizing words and modelling essays, and the acceptance of the learning effect was limited to the two levels of right or wrong and can or cannot. As a result, most students are unfamiliar with reflection on learning, peer assessment and self-evaluation. It is clear that traditional teaching methods do not meet the requirements of developing critical thinking skills.

2. Theoretical Foundations

2.1. The meaning of 'critical thinking'

The English term "critical thinking" is derived Greek; the word 'critical' derives from two Greek roots: 'kritikos' (the ability to discern or judge) and 'kriterion' (the criterion), which literally means 'to think consciously, using appropriate evaluation criteria, and ultimately to make a reasoned judgement'. The Delphi Project report defines critical thinking as a purposeful, self-regulated process of interpreting,

analysing, evaluating, inferring and describing the arguments, concepts, methods, criteria or contexts on which judgements are based. Critical thinking is composed of tendencies and skills. Critical thinking tendencies refer to people's beliefs, values, attitudes and willingness to engage in critical thinking activities and are habitual intrinsic motivators (Delphi, 1990), which is the aspect of personality traits and is a consistent psychological drive that people need to solve problems, evaluate opinions and make decisions. There are positive or negative tendencies for critical thinking, and they can be taught and learned. The task of higher education is to promote the development of students' critical thinking tendencies in a positive direction, while changing or inhibiting the growth of students' negative tendencies (Wen, et al., 2014, 2016; Zhang, et al., 2017). This paper attempts to promote the development of students' critical thinking tendencies in English Writing in a positive direction through the teaching practice of College English.

2.2. The Ternary Structure Model

In 2006, Richard Paul and Linda Elder of the Center for Critical Thinking in the USA developed a ternary structure model (also known as the PEM model) based on teaching and learning needs. The PEM model consists of the elements of thinking, standards and intellectual traits, with the eight elements of thinking at the centre: the claim that all thinking has a purpose; that it attempts to clarify or solve problems; that it is based on assumptions; that it is developed from a certain perspective; that it is based on data, information and evidence; that it is expressed through reasoning or interpretation (Paul, R., & Elder, L., 2007). The structure of critical thinking proposed by Paul and Elder consists of eight elements, ten standards and eight intellectual traits, as shown in Table 1.

Table 1. Table of the ternary structure model of critical thinking (Paul, R., & Elder, L.,2019)

THE STANDARDS	THE ELEMENTS	INTELLECTUAL TRAITS
Clarity	Purposes	Intellectual Humility
Precision	Inferences	Intellectual Autonomy
Accuracy	Questions	Intellectual Integrity
Significance	Concepts	Intellectual Courage
Relevance	Points of view	Intellectual Perseverance
Completeness	Implications	Confidence in Reason
Logicalness	Information	Intellectual Empathy
Fairness	Assumptions	Fair mindedness
Breadth		
Depth		

2.3. Overview of the theoretical framework of the Production-Oriented Approach

The Production-Oriented Approach (POA), developed by Professor Wen Qiufang (2015), was chosen for this study. It draws on the findings of second language acquisition theory and is based on the output hypothesis and the socio-cultural perspective of language learning. The POA's teaching philosophy is the guiding philosophy of the system and includes the following: learning-centred, learning-using integrated and whole-person education. The teaching and learning process, which includes motivating, enabling and assessing, is the implementation of the teaching and learning philosophy. In this process, teachers play a leading role in designing output scenarios, establishing learning-driven goals, selecting learning materials and collaboratively evaluating learning outcomes (Wen, 2015, 2017).

3. Research Design

3.1. Population

The subjects of this experiment were students from one class of undergraduate nursing majors in the class of 2022, a total of 49 students. These students scored an average of 101.2 (out of 150) in English in the college entrance examination, and the students generally had a certain level of English foundation and independent learning ability.

3.2. Research questions

Through a one-semester teaching experiment, this study attempted to answer the following questions:

(1) Can the teaching of English at the university level, designed on the basis of the POA theoretical framework, improve students' critical English writing skills?

(2) Can such teaching promote the development of students' positive critical thinking tendencies?

3.3. Experimental steps

The lesson plan was designed according to the POA teaching process, following the structure of motivating, enabling and assessing, and a 3-month teaching experiment was carried out. The aim of the POA-motivating session is to motivate students to learn new knowledge and to produce output by making them aware of their own shortcomings through attempting to complete output tasks (Wen, 2020). In order to stimulate students' willingness to produce, four communicative tasks with practical or potential

communicative value were designed based on the themes and contents of the four units in this semester's teaching tasks. The next enabling session is the core part of the POA process, in which the total output task is divided into three subtasks, and the subtasks are used to scaffold the final output attempt. Finally, assessment criteria and activities were designed based on the principles of teacher-student collaboration.

3.4. Teaching examples

The implementation process is illustrated by the example of Unit 4 Heroes of Our Time, Book 1 of the New Horizon College English Reading and Writing Course (3rd Edition) (see Table 2). Tasks with potential communicative value were designed for the unit topic and the two texts.

4. Measurement Tools

4.1. Writing Test

Writing is an outward expression of one's thinking, and the process of writing is somewhat similar to the process of thinking (Carlson, 1995). Scholars in China have further pointed out that critical thinking skills have a positive impact on second-language writing and can directly predict second-language writing performance (Feng, 2019; Gao, 2017; Jin, 2018). Two sets of essays from the first half of the 2018 College English Test 4 exam papers: "the importance of reading and how to develop it" and "the importance of speaking ability and how to develop it". Students were given 40 minutes to write a short 250-word essay and submit the task via the i-test website. The pre-writing test was scheduled at the end of the first teaching week and the post-test at the end of the last teaching week. The essays were then marked for the students. The scoring criteria were based on the Thinking Criteria described above and focused on four dimensions of writing: relevance, clarity, logic, and depth.

4.2. Critical Thinking Disposition Scale

This study used the Critical Thinking Disposition Questionnaire revised by Wen, et al. (2011). The scale is a revised Chinese version of the California Critical Thinking Disposition Inventory (CCTDI). The revised scale consists of 54 questions covering eight dimensions, in which participants judge whether the description of each question is consistent with their own. The overall reliability of the questionnaire was 0.90 (Wen, et al., 2009, 2010, 2011, 2016).

Table 2. Classroom activities and design

Teaching Week	Teaching Activities and Design	Core Critical Thinking Skills
Week 1	<p>Motivating: During the epidemic, people shared touching stories of heroes from different countries through social media. If you were to tell the story of a Chinese hero, whom would you choose? Please write this heroic story in English. The word count should be about 250 words.</p> <p>Assign Subtask 1: Describe the heroic act.</p> <p>Enabling: (1) Using paragraphs 1~4 of A Heroes Among Us as the main clues, let students master the heroic behaviour of the characters in the text through exercises such as quick reading, close reading and retelling.</p> <p>(2) Discuss in groups 2 true stories (the decision of the captain of the aircraft carrier USS Roosevelt and the construction workers of Thor's Hill Hospital) that happened in the New Crown epidemic. Please explain their heroic actions.</p>	<p>(1) Planning, checking, adjusting, evaluating;</p> <p>(2) Judging, generalising, self-regulating, creating.</p>
Week 2	<p>Assessment: Evaluate output subtask 1 in a collaborative teacher-student evaluation.</p> <p>Assign Subtask 2: Summarise heroic qualities based on heroic behaviour.</p> <p>Enabling: Using paragraphs 7 to 12 of A as the main content, extract the heroic act through interactive reading and have students summarise what qualities such an act reflects through group discussion.</p> <p>Assign sub-task 3: Work in groups to draw a map of the hero.</p>	<p>(1) Skills to examine, adapt and evaluate their own thinking;</p> <p>(2) analysis, exploration, synthesis, problem solving, collaboration and creativity.</p>
Week 3	<p>Assessment: Present and evaluate revision subtask 3 in a collaborative teacher-student assessment.</p> <p>Enabling: (1) Explain the significance of heroic stories based on paragraph 13 of Part A.</p> <p>(2) Introduce a heroic person in English who is close to your heart, paying attention to the description of the hero's actions, qualities and the impact of the story.</p> <p>(3) Upgraded output task: Take the group as a unit and choose the best copywriter in the group to complete a Vlog entry for the whole group to record for the text.</p>	<p>(1) Skills to examine, adapt and evaluate their own thinking;</p> <p>(2) Judgement, evaluation, impartiality, openness and cooperation.</p>

5. Data Analysis

A paired samples t-test was conducted using SPSS on the students' twice writing scores. The results of the test showed that there was a significant difference between the students' pre-test and post-test scores ($t = -6.650$, $df = 38$, $p < 0.05$): the pre-test scores were significantly lower than the post-test scores ($MD = -7.282$).

This suggests that POA-based university English teaching design can improve the use of critical thinking skills in writing and thus improve students' English writing skills. Descriptive statistics were then conducted on the results of the two discursive tendency questionnaires. Table 3 presents the students' total and dimensional scores for both surveys. The data show that the students' total discursive tendency score was 3.8893 on the pre-test, indicating no positive discursive tendency, and 4.1256 on the post-test, indicating an overall positive discursive tendency. The post-test was higher than the pre-test in all dimensions except for resilience.

In order to test the significance of these changes, a paired samples t-test was conducted. The results showed that there was a significant difference between the total scores on the pre-test and the post-test ($t = -2.312$, $df = 38$, $p < 0.05$): the pre-test scores were significantly lower than the post-test scores ($MD = -0.23636$). In addition, there was a significant difference between the pre-test and post-test scores on the three dimensions of analytical, truth-seeking and cognitive maturity ($t = -4.085$); -2.279 ; -2.218 , $df=38$, $p < 0.05$): The pre-test scores were significantly lower than the post-test scores ($MD = -0.80513$; -0.36744 ; -0.40603).

6. Conclusion

This study has found that the design of College English teaching based on the POA theoretical framework has helped students to improve their critical English writing skills and to develop their positive thinking disposition.

The development of critical thinking skills is a process of moving from lower to higher levels of thinking and cannot be achieved overnight. Because of the transferability of critical thinking skills, good thinking habits not only help students to improve their writing skills but also provide them with the ability to analyse and solve problems in the workplace and in everyday life, which will benefit them greatly.

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