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Assessment of College Students' Critical Thinking in English Writing Based on 3-Dimension Model

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Based on 3-dimension model of critical thinking and the related researches on foreign language writing, this paper evaluates college students' critical thinking skills in English writing by doing researches on a group of English writing samples. The result shows that the existence of traditional ideas has its rationality which is particularly prominent in questions, points of view and inferences. While clear definition of keywords, precise, in-depth, and accurate information and verified assumptions are rarely satisfactory. In view of this result, suggestions on curriculum reform and teaching method improvement may practically affect the present situation.

Keywords: 3-dimension model, critical thinking, English writing

Introduction

Being one of the most important skills in western education, critical thinking can be traced back to 2,500 years ago. Many western scholars developed critical thinking in the following thousands of years. Up to now, critical thinking has become one of the main educational targets in the 21st century. EFL learners express their critical thinking by output activities such as speaking and writing, among which writing has its natural advantage in reflecting writers' critical thinking abilities. Critical thinking in English writing is a higher level of thinking with both characters of critical thinking and foreign language writing (Ma, 2021). In order to explore effective ways to cultivate EFL learners' critical thinking abilities, the author implemented a research on evaluating the current critical thinking abilities of college students in English writing.

Construction of the Assessment Tool

Evaluation of critical thinking skills in foreign language writing has been accepted and gradually researched in various ways in the world. Stapleton (2001) evaluated Japanese students' critical thinking skills in foreign language writing from the aspect of conclusion, argument, evidence, identifying rebuttal, responding to rebuttal and fallacy, etc. Mu Congjun (2016) and Dong Yanning (2017) made the similar evaluation based on critical thinking standards, such as clarity, relativity, accuracy, logic, depth, and breadth of argumentation. For years, Chinese scholars were endeavoring to find a comprehensive and reliable assessment tool for critical skills of college students in China. Wen Qiufang was considered in the academic world to set a precedent in constructing such a tool. She proposed a theoretical framework for constructing a critical thinking skill measuring instrument for foreign language college students in China—the conceptual framework, which

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composes of two levels—the upper level is the meta-disciplinary skill and the lower level is the critical thinking skill (including cognition and emotion) led by the upper skill (Wen et al., 2009).

In an attempt to form a more comprehensive and complete measurable tool, Richard Paul and Linda Elder, from Center of Critical Thinking, introduced their 3-dimention model which includes 10 standards, eight elements, and eight traits of thought. According to Paul and Elder, all thinking is defined by the eight elements that make it up. Whenever people think, they think for a purpose within a point of view based on assumptions leading to implications and consequences. Besides, they use concepts, ideas, and theories to interpret data, facts, and experience in order to answer questions, solve problems, and resolve issues (Paul & Elder, 2016). Intellectual traits are conceptualized as the standards necessary for making sound judgement or for reasoning well, for forming knowledge, for intelligent understanding, for thinking rationally and logically (Paul & Elder, 2016). These traits are best understood as interconnection with 10 standards. Focusing on the cross-disciplinary, rather subject-specific application, 3-dimention model served as an efficient and comprehensive tool in assessing critical thinking in the form of content. By applying these 10 standards into its eight elements, the quality of thought in the writing can be deeply examined and assessed.

Based on 3-dimention model of critical thinking, the author constructed evaluation scale of critical thinking in English language writing, covering both aspects of critical thinking skills and standards, such as setting purposes and raising questions, expressing opinions, providing evidence, making argumentation, and drawing conclusion. Each scale covers five grades. Grade 4 covers standards of clarity, precision, accuracy, depth, width, logic, and fairness of critical thinking; Grade 3 covers clarity and precision with lower level of depth, accuracy, and breadth; Grade 2 stresses insufficiency in clarity, precision, and depth; Grade 1 shows all shortages of accuracy, precision, fairness, and logic. Grade 0 represents inability in all standards mentioned above.

Table 1

Evaluation Scale of Critical Thinking in English Writing

Element	Standard	Grades				
		Level 4	Lever 3	Level 2	Level 1	Level 0
Questions	Targeted purposes and in-depth questions	In-depth questions with clearly-defined purpose	In-depth questions with vague purpose	Simple questions without specific purpose	Simple questions with assumptions	No questions, purpose or assumptions
Opinion	Fairness, breadth of personal inclination and opinion	Dialectical thought with clarity, fairness, and logic	Multi-angled thought with clarity and logic	Fair thought with logical problems	Vagueness in thought with more logical problems	No clarified thought
Evidence	Relevance, accuracy, clarity, sufficiency of evidence and concept	Sufficient information with accuracy, relevance and logic	Some information with relevance and logic	Insufficient information with relevance	Insufficient information without relevance or logic	No information
Argument	Fairness, feasibility, logic, breadth of implications and consequences	Dialectical inference in depth and logic based on sufficient evidence	Multi-angled discussion in depth	Incomplete inference with relevance	Illogical inference and implication	No inference or consequence
Conclusion	Relevance, reasonableness, clarity, significance, precision of inferences	Reasonable and clarified conclusion with precision	Less reasonable conclusion in depth	Simple conclusion with loose thinking	No relevance or clarity in conclusion.	No conclusion

Research Design

This study took writing samples from 108 Chinese undergraduate university students in English major. All participants were given writing tasks in their Integrated English course in Grade 2. They had taken two sessions of writing courses beforehand.

The samples were all persuasive essays in 200 words in response to given controversial topics. Since persuasiveness is connected to critical thinking because writers must predict their audience's needs, both anticipate counterarguments and question their own assumptions (Ramage & Bean, 1999). The purpose of the research is to clarify the general situation of college students' critical thinking level in English writing and distributions of their strength and weakness of critical thinking ability so that related teaching methods can be improved based on the research result.

Research Result and Analysis

All the samples have given scores based on the reconstructed evaluation index of critical thinking. The figure below shows the average scores of each element indicating a generalization of critical thinking ability of college students in English writing. The standard deviation shows the discreteness between the highest and the lowest scores which indicate the quality of the elements of critical thinking.

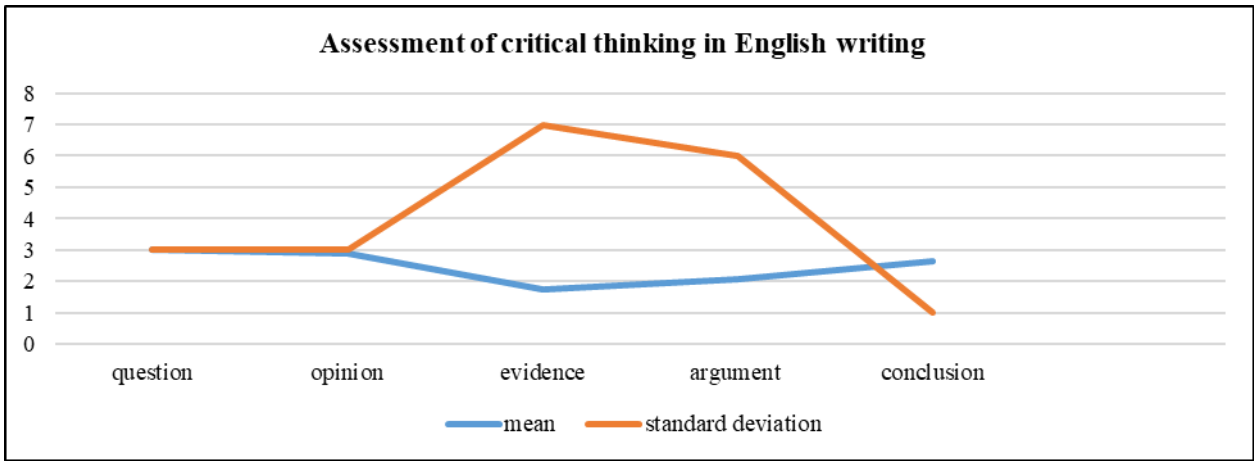

Figure 1. Result of the assessment of critical thinking in English writing.

The results of the assessment indicate that test takers did display critical thought. They were conscious about the purpose, their view points and inferences in their writing. However, the results of quality of reasoning, including elements of evidence and argument, demonstrated that participants just had a superficial grasp of critical thought of fair quality, especially in term of concepts, assumptions, information, and implications. In other word, they had awareness in identifying eight elements, but had little skill to present these elements fully by their standards.

Information and implications are strongly connected with logic, which means that implications should be reasonably inferred from information provided. When quality of information in one reasoning is unclear, narrow, irrelevant, inaccurate, and insufficient, it is natural that unreasonable implications are presented. Results of this paper confirm with such an idea. Three factors contribute to the low quality of both elements: design of writing course, language proficiency, and limited information channels. First, college writing course

designed mainly to cultivate students sound grammar and reasonable structures, rather than logical content, coherence and information precision. Such a design is partially against the normal communications strategy. Consequently, students held the wrong belief that a piece of quality writing scored high for its advanced vocabulary and great structure (Austin, 2016). Thus, students had habits of memorizing the so-called sample expressions for preparing the writing test. Second, language proficiency serves as another barrier to provide logic information an implication. Besides, college students still have difficulty in reading original English news and books. This factor also partially attributes to the last factor—limited information channels. Before writing essays, few students searched online for the authoritative and useful information. So, what they can provide, sometimes, is just personal experience.

Suggestions

To cultivate students' critical thinking skill, it is not enough to only improve these eight elements and their standards. What lays behind are intellectual traits which are dispositions that characterize good qualities or virtues a critical thinker should possess. It includes humility, autonomy, integrity, courage, perseverance, confidence, empathy, and fairness. As Linda Elder said, "if we turn a blind eye to the cultivation of intellectual traits, we are vulnerable to suffer from intellectual arrogance, cowardice, narrow-mindedness and hypocrisy" (Paul & Elder, 2006, p. 12-15). Thus, Paul and Elder emphasized that the standards must be applied to the elements of thoughts, and critical thinking abilities should develop with the intellectual traits so as to prevent selfish or egocentric thinking.

According to Paul and Elder, critical thinking has an intimate relationship with education. To make sure the quality of critical thinking education, teachers should first deeply understand the concept or importance of intellectual engagement in learning. As teachers foster ritual thinking skills, it is important that they do so with the ultimate purpose of fostering traits of minds (Paul & Elder, 2005). Previous study confirms that course design plays an important role in fostering critical thinking ability, especially for writing course (Yue, 2016). A properly designed writing task should pay close attention to students' needs of improving their writing ability. Eight elements serve as a great example for teachers to train their students strong awareness of them. Besides, the role of a teacher should be transformed from the authority in the utmost position to that of a guide or organizer who could actively encourage students to speak out in their own voice. In this way, intellectual courage and confidence can be established step by step. As for developing intellectual humility, intellectual autonomy, and intellectual integrity, a broad information channel is workable and efficient. Dictionary, news, journals, and magazines can be introduced to students as their information sources to improve the element of concepts and information. Teachers could also encourage students write for logic and reasonableness, rather than for exams.

From the perspective of learners, intellectual perseverance, empathy, and fairness should always be underlined. Generally speaking, Development of critical thinking ability is a long term of effort. Thus, EFL learners should keep practicing and working. Moreover, since any significant deficiency in reading entails a parallel deficiency in writing (Paul & Elder, 2016), to improve the quality of critical writing, students should start from reading more and analyzing its inner logic.

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