



A Study on Developing Critical Thinking of College Students through CRD in Comprehensive English Class

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Abstract: To cultivate independent innovation capability has become the core goal of the Higher Education in China and also an important indicator to display national strength. The critical thinking ability is the premise and foundation of innovative capability. Therefore, there is a pressing need to develop critical minds of the college students in daily teaching. This research aims to explore the effective ways of developing critical thinking (CT) competence through collaborative reasoning discussions (CRD). It conducts a detailed analysis of how to integrate the objective of developing CT skills in collaborative reasoning discussions (CRD), so as to provide the reference for the practice of critical thinking research and come up with the applicable teaching mode for critical thinking in Comprehensive English class. This paper is trying to explore the effectiveness of collaborative reasoning discussions (CRD) on developing critical thinking (CT) competence. By applying the CRD teaching mode into the Comprehensive English class, the author aims at cultivating the students' critical thinking consciousness and competence. The paper hopes to provide a new perspective of developing the CT ability in Application-oriented college but there is also a need for empirical research on its applicability in a wider field.

Keywords: critical thinking, collaborative reasoning discussion, comprehensive English class

Introduction

The 21st century has overwhelmed individuals with a sea of information. College students, as the native netizens in this era, obviously have no difficulty in getting access to information as well as acquiring knowledge. Equipped with the modern technology, AI in particular, college students today are much more informed and skilled. While, despite their accumulation of information and knowledge, there is still a higher requirement for them to meet the new demands of the society, that is, to have the creative minds. Critical thinking (CT), unquestionably, plays a vital part in fostering the creative minds. As is considered to be a core quality to be equipped by the students, critical thinking has become a research focus in the educational reform currently. In this knowledge era, students are expected to be able to think critically because it allows to identify problems and address these problems. Critical thinking skills are not only of great importance for their academic achievement and their future work performance, but also for the social context, where they

make their decisions independently. Collaborative reasoning discussions seek to stimulate learning mechanism and interest, with the purpose of cultivating critical thinking and social skills.

This study intends to explore the effectiveness of collaborative reasoning discussions (CRD) on developing critical thinking (CT) competence. By applying the CRD teaching mode into the Comprehensive English class, the author aims at cultivating the students' critical thinking consciousness and competence. It mainly consists of five parts. The first part states the significance and necessity of developing CT skills. The second part focuses on the literature review of CT and CRD respectively. The third part explores the ways to integrate CT skills development into CRD. In this part, the author describes the procedures of implementing CRD in the Comprehensive English class, and observed how it has developed students' critical thinking. In the fourth part, the main findings of this study are discussed. Lastly, the author comes to the conclusion that it is a bold yet valuable and effective way to employ CRD in



Comprehensive English teaching, for it not only improves the students' language proficiency and builds their confidence in expressing opinions, but also further develops their ability in inferences, reasoning and evaluation, which are exactly in accordance with the skills of CT.

Literature Review

In this part, the literature review will be done from two respects: Critical thinking(CT) and Collaborative reasoning discussions (CRD) respectively.

1. Critical thinking

Critical thinking is considered the 5th in a top ten demanding skills for 2022. Franco et al. showed that people who master a “good thinking” experience more professional, academic and daily life opportunities^[1]. Hence, focus on critical thinking has never been decreased.

The history of critical thinking can be traced back to the early philosophy of Socrates' age when the critical thinking was carried out in dialogues between Socrates and his students. Then it was further developed by the General Skepticism of French Philosophy Descartes who believed that many of the existing views are highly inaccurate and doubtful. Descartes' emphasis on deductive method had shaped Kant's view on critical thinking, which has exerted an important influence on the current critical thinking. Today, the study of critical thinking abroad has been conducted mainly through the following three aspects: philosophy, psychology as well as education. Each field defines the critical thinking with their own characteristics.

Buzduga^[1] made an overview of the three approaches and pointed out their limitations respectively. Philosophical approach considers critical thinking in terms of attitudes or dispositions of an ideal critical thinker. It involves thinking that meets standards or certain criteria of accuracy and adequacy. While, the limitation of this approach lies in a lack of consideration of the process of thinking. Psychological approach, on the other hand, describes CT in terms of metacognitive processes or in terms of skills, focusing on how people really think. It defines CT in terms of a specific behavior that a critical thinker can have. But it reduced CT to the tested skills performance mostly done in laboratory and without generalization to the daily life performance of the the assessed people. The educational approach proposes a perspective based on Bloom's Taxonomy of the Cognitive Domain, which comprises different levels of educational objectives on the cognitive domain. And application, analysis, synthesis and evaluation are four levels reckoned to be equal to critical thinking.

Table 1. Bloom's hierarchical taxonomy of educational objectives for cognitive information processing (Buzduga, 2021)

No.	Objective levels	Particularities of each level
1	Knowledge (lowest)	Accumulates as much

		information, knowledge
2	Comprehension	Understand what one knows
3	Application (higher)	Applies what one comprehends
4	Analysis	Appraises what one comprehends and applies
5	Synthesis	Put together the knowledge one has analyzed
6	Evaluation	Appraises the analyzed and synthesized knowledge

Current Research Review

As has already been testified that critical thinking ability has played an important role in solving problems and intellectual innovation, more and more studies were made on cultivate critical thinking ability of the college students both home and abroad in the past 20 years. The numerous research results on critical thinking can be roughly divided into three categories: 1) defining the subentry ability of critical thinking; 2) constructing the measuring tool of critical thinking ability; 3) exploring the ways and effectiveness of the cultivation of critical thinking ability in higher education. With the National Medium and Long Term Education Reform Plan Outline (2010-2020) unveiled in China, researches on critical thinking began to gain the attention of domestic researchers. Starting from the introduction of the theories of critical thinking, the researchers gradually turned their focuses onto the construction of theoretical models and assessment of critical thinking in the first decade of 21st century. Many Ph.D students specialized in ELL and Education made their doctoral dissertations on critical thinking and greatly accelerated the development of critical thinking research in China. Luo Qingxu^[5] synthesized the theories of critical thinking and developed a new assessment method of critical thinking in his doctoral dissertation *Research on Critical thinking Theories and its Evaluation*, which brought the study on critical thinking to the wide public attention. Huang Fang^[3] *A Study on Teaching Approaches to Cultivating Critical Thinking of College Students based under PBT(Project-based Task) Teaching Mode* in her doctoral dissertation. Huang Cunliang^[2] attempted to construct the conceptual goal, module structure and implementation strategy for the critical thinking course, so as to provide a feasible solution and strategic framework for the development and design of the critical thinking curriculum in his doctoral dissertation *A Study on Curriculum Design of University Critical Thinking from the Perspective of General Education Curriculum*.

In recent years, many articles were published on how to cultivate critical thinking ability in a specific course of English major like Writing, Advanced English, and Comprehensive English. For example, *Intensive Reading teaching for English majors and cultivation of Students' Critical Thinking Ability* by Han Shaojie and Wang Xiaoying^[4]; *The Enlightenment of Cultivation of Critical*

Thinking in American Universities to English Teaching in China by Li Zhengshuan, Li Yingxin^[6]; *PBL and Development of Critical Thinking —Teaching Design in the Course of Advanced English* by Zhang Ruisi^[9]. All of them emphasized the importance of critical thinking cultivation for English majors and propose the effective ways of fostering critical thinking for college students with a higher English level. However, the studies on critical thinking of students with relatively low English level in those Application-oriented colleges are few and far between. There is an urgent need to motivate those students to participate in the class discussion so as to develop their critical thinking. When collaborative reasoning discussion was introduced into the English class, it seemed to have greatly increased the students' interest in expressing their ideas despite their difficulty in their second language articulation.

This paper studies how to cultivate critical thinking in the Comprehensive English class through collaborative reasoning discussions.

2. Collaborative Reasoning Discussion

Collaborative learning refers to coordinated and synchronized learning activities to form and maintain a common and consistent understanding of the same problem. Collaborative reasoning is a special form of collaborative learning, which is a student-led, open group discussion mode^[7]. Collaborative reasoning learning has been widely used in elementary and secondary school classrooms in the United States for the past three decades. Previous studies have found that collaborative reasoning learning plays a significant role in improving students' independent critical thinking, and is growing in popularity among educators and learners.

Collaborative reasoning discussion is proposed under the background of globalization, a new era when the education of social skills are more emphasized than ever before. With the development of information and technology, personal communication is thrown into a visual world in which people grow less and less competent in communication. While, as is known to all, fully communication is essential in paving the way for a higher thinking.

As a new mode of classroom teaching, collaborative reasoning discussion poses the challenges to the traditional teaching mode, which used to restrict the ways students think and express. The main purpose of collaborative reasoning discussion is to stimulate learning interest and cultivate critical thinking and social skills^[8]. To achieve these goals, in collaborative reasoning discussions, text for discussion and its operational steps are two key elements to be carefully selected and designed.

Text for discussion

In collaborative reasoning discussions, students are expected not only to express their opinions openly and boldly but also to be open-minded and modest enough to consider other students' ideas. Thus, the text for discussion should be

carefully chosen so as to provide them a broad and multi-perspective in their discussion. The discussion on multi-layered problems is helpful for mobilizing students' knowledge and experience to the maximum extent. In addition, a big question is the core of the collaborative reasoning discussion for being thought-provoking and challenging to the students. It never arrived at a definite answer but always leaves room for students to argue and make their own decisions. In this sense, setting the big question seems to be very critical. And a good big question is always found to be well-supported by the text. In order to be more argumentative, students of different opinion groups are bound to read the text profoundly and find themselves sufficient proofs to justify their opinions, which, in turn, refines their skills of synthesis and application in various levels.

Operational Steps

There are 7 major steps in conducting the collaborative reasoning: text reading, opinion forming, self-proving, ideas exchanging, integrating and summarizing, group report, and reflection.

In each class, students are given a selected text to read and then, based on the big question, they come up with their views on that topic according to their initial understanding of the text and then find out the evidences in the reading material to prove their views. After that, students within a group are to exchange their opinions and state whether they support or disagree with the other person's views. A debate or an argument is allowed if needed. Thus, different points of view are displayed, and new information provided by others is established on the basis of prior knowledge, so as to form a multi-angle understanding and cognition of the problem. A summary of the proposed views is required to integrate the different views and finally come into a comprehensive idea of their group. Sorting out the existing viewpoints helps students to process and structurally integrate the information obtained in the discussion process, laying a foundation for constructive interaction with other students in the next step. The group report is to be presided over by the teacher. Each group states their own views and arguments, and communicated and discussed with other groups to synthesize information from different dimensions in a larger scope. Immediate feedback is supposed to be given at the report and set the example for the reasonable argumentation and ideas statement. Different views lead to a further exploration of the topic and finally reach a co-construction of cognition at a class level. Group presentation aims at establishing different perspectives of thinking and develop a systematic view through guided participation. Reflection is the last but a vital step in collaborative reasoning discussion. By reflection, students are able to see their own strengths as well as weaknesses in CRD, and eventually accelerate their metacognition and self-regulated learning.

Teaching is not simply about teachers teaching facts and skills to students, but about asking students to think critically about their own subjects, textbooks, learning processes and the society they live in. In collaborative reasoning discussions, the teacher will transform the teaching contents into questions, and students are expected to answer the questions in a way of collaborative learning, in which they exchange their opinions and reorganize their knowledge and improve their understanding of the text.

According to the author's observation, the lack of critical thinking competence has greatly impeded students' development in creativity. Thus, Comprehensive English class, as the core course of the fundamental stage of English majors, feels obliged to integrate critical thinking in its daily teaching.

Ways to Integrate the Development of CT Skills during CRD--- A case of *Spring Sowing* from *Contemporary College English* (Book 4)

The core of critical thinking is a recurring process of raising questions and hypotheses, in which logical reasoning serves as the main means to verify these hypotheses. Eventually, the students are expected to be able to solve the problems based on the logical analysis. Considering the actual foreign language level of students and the actual teaching situation in our college, the process of thinking is simplified into five main aspects: problems to be solved, hypotheses, opinions, information and conclusions(Li, 2014).

In the application of CRD in Comprehensive English class, the teaching activities are designed to meet the needs of development of critical thinking according to the five aspects. In this paper, the author intends to demonstrate how CRD is applied in the class with an example of analysis of the 9 elements of short story in *Spring Sowing*.

Table 2

CT Elements	Contents of Teaching Activities	CT Skills Involved	CRD Steps	Characteristics
Problems to be solved	What are the 9 elements of short stories	Knowledge acquisition and accumulation	Preparation: Background information collection	
Hypotheses	The 9 elements in <i>Spring Sowing</i>	Knowledge comprehension and application	Text reading Opinion-forming	Student-centered
Opinions	Analysis of elements and offering supportive facts	Inferences (Inductive and deductive)	Self-proving	
Refined Information	Re-forming opinions with the recognition of cause and effect	Decision-making Synthesis	Exchanging ideas; Integrating and summarizing	Teacher-aided
Conclusion	Generating unique ideas and designing their presentation Evaluation	Performing and evaluating	Group report Reflection	

As is indicated in the chart, the students are divided into 9 groups of 4 or 5 with different potentials. They are going to fulfill their tasks in a collaborative way. In this paper, the author tends to explain the way of developing CT skills in the class in terms of the CRD steps.

1. Preparation

Spring Sowing is an article in Intensive Reading course of *Contemporary College English*(Book 4). Unlike the other essays they have learned in the previous articles, *Spring Sowing* falls into the genre of short stories, which has its unique features. In order to fully appreciate the passage, the students are introduced to the 9 elements of short stories and their interest in what the 9 elements are in this text is greatly aroused when a lot of questions are raised for them. This task

is challenging for them because this is the first time they have been asked to analyze a text in this way, which, in turn, triggers their curiosity as well.

The 9 elements of short stories include characters, setting, conflict, plot, point of view, tone, symbolism, images, and last but not least, theme. Before the task, the teacher briefly analyzes the 9 elements of a Chinese short story---*Medicine* by Luxun for the reason that it is well known to the students. Then tasks assigned. Each group is responsible for one of the elements analysis. When assigned the tasks, the students are encouraged to find out the concepts of the 9 elements based on the information they search from internet or books. They may have their internal division of the task within their group, and meet each other online or offline with the information

they have collected according to their schedule. During this process, the students may come up with conflicting ideas based on their references, but they managed to filter the information and formulate their consistent view through the logical reasoning and discussion and finally achieve the purpose of knowledge acquisition and accumulation, which is in accordance with the CT skills in the first step. The acquisition and accumulation of knowledge is the primary objective in this stage.

2. Text Reading

With the unambiguous knowledge of 9 elements of short stories, the students of different groups, bearing their respective task in mind, begin to read the text carefully and come up with the preliminary hypotheses: what are the 9 elements in *Spring Sowing* and why? The lack of full comprehension of each element will definitely lead them to an unfavorable position to propose their assumptions. For example, group 6 is responsible for the tone of this story, which means they have to analyze the author's attitudes towards his work. However, part of the group members believed that it was the tone of the characters in this story, and they didn't realize it until group two made their presentation, where they found they repeated the task of character analysis. Therefore, it is an opportunity for them to verify whether they have fully understand the knowledge in the first stage and to what extent they can apply knowledge to practice. The application of knowledge is one indispensable objective of CT in Bloom's hierarchical taxonomy of educational objectives.

3. Opinions-forming and Self-proving

Based on the profound interpretation of the elements and full comprehension of the text, students were tempted to put forward their opinions respectively. With their supportive evidences, they analyzed the relationships among the facts or its cause and effect, which is of great importance to formulate the opinions. Within the group, each of the students is supposed to illustrate their opinions with facts from the text. To convince oneself is the first step to demonstrate their ideas.

For group one, the method of deduction and induction are well employed by the students to sketch the protagonists. For instance, Mary must be a thoughtful and docile young girl because she took good care of her husband in the shivering morning and chose to console her husband when he was irritated. She is sensitive and fragile because "She picked up her seeds and began to spread them rapidly to drive out the sudden terror that had seized her at that moment when she saw the fierce, hard look in her husband's eyes that were unconscious of her presence. She became suddenly afraid of that pitiless, cruel earth, the peasant's slave master that would keep her chained to hard work and poverty all her life until she would sink again into its bosom. Her short-lived love was gone. Henceforth she was only her husband's helper to till the earth." While the other students held the

belief that she is tough for "Sleep would always bring forgetfulness".

Their opinions on Martin were rested upon the descriptions of Martin's attitudes towards his wife. Someone saw Martin's confidence and boastfulness in "His eyes had a wild, eager light in them as if some primeval impulse were burning within his brain and driving out every other desire but that of asserting his manhood and of subjugating the earth." But others said he was determined and resolute for his persistence in proving himself. Martin was also considered to be shy but romantic when "He looked at his wife's little round black head and felt very proud of having her as his own. He leaned back on his elbow and took her hand in his. Shyly and in silence, not knowing what to say and ashamed of their gentle feelings."

Reasonable inferences with supportive evidences were made during their discussions.

4. Exchanging Ideas, Integrating and Summarizing

As the old Chinese saying goes, listen to both sides and you will be enlightened; heed only one side and you will be benighted. Being open-minded, as an essential prerequisite for a critical mind, requires the students not only learn to express themselves but, more importantly, to listen. The exchange of ideas offers them the chance to know others but also to be heard. During the discussion, as they exchange their ideas, all the evidences were collected and assessed according to its persuasiveness before they made their decision on how to illustrate the elements. Those ideas supported by potent evidence stayed to re-form their opinions and a synthesis of information was done during their discussion. For instance, group 9 responsible for the theme of the story split on their views about what is the theme of text. One believed that this text intended to praise the Irish people for their diligence and persistence. The other believed that the author was criticizing that generation for being self-contented with the current conditions and unwillingness to make any change. Both sides have their potent evidences to justify their beliefs. Finally, with the fierce debate on this topic, they arrived at the conclusion that the comprehension of *Hamlet* varies from reader to reader and their presentation was made from the two aspects, leaving the audience to decide which side they stand by.

5. Group Report and Reflection

In a learning process, we all agree that the sufficient input makes for the efficient output. Group report is the essential step to check how much they have absorbed and to what extent they fulfilled their tasks.

The group report was presided over by the teacher. Each group stated their own arguments and supportive facts, and communicated and discussed with other small groups to synthesize information from different dimensions in a larger scope. During the report, teachers evaluate and feedback the discussion results of each group, and set an example for students to demonstrate reasonably. When a group presents

different viewpoints, the teacher guides the students to carry out exploratory dialogue between the groups and construct the cognition jointly at the class level. Group presentations are not intended to allow students to reach a consensus, but rather to focus on different angles of thinking and develop a systematic view through guided participation(Han, 2009). Self-reflection on their performance was being done both in the course of their preparation of the presentation and after the presentation. Reviewing the whole process, students learned about how they feel like CRD, the pros and cons of CRD and in what way they can improve their performance next time, which, in turn, helped them to exercise their metacognitive ability and promoted self-regulated learning.

Discussion

According to observation in class and investigation after class, the author comes to the conclusion that CRD plays a significant role in facilitating the cultivation of critical thinking ability of college students, while text reading with critical thinking skills and methods is conducive to the students' formation of scientific and dialectical values, and more conducive to foreign language courses to achieve the goal of education.

CRD promotes CT ability. The promotion of CT ability is embodied in three aspects: knowledge acquisition, performance, and evaluation. In CRD, students are encouraged to demonstrate their views with the convincing evidences, which makes a necessity to not only to collect the information on their own but also to hear different voices in social interactions. In the course of assembling and processing information, students are able to refine their skills in knowledge acquisition and accumulation. For example, the knowledge of point of view in fiction introduced in Spring Sowing brings the students a brand new perspective to understand a story. The symbols in Spring Sowing are fully discussed and explored and even conflicting ideas hit upon each other. It is precisely in the collision process of different ideas, students need to constantly reflect on the rationality of various ideas and make their own independent judgment, which promotes their development of critical thinking ability. Provided with the ample evidences and

information, students learn to employ various ways to form their own views. The skills of induction, deduction, comparison as well as encoding or decoding are developed in giving a satisfactory performance. Meanwhile, the chances that given in CRD also help the students to build their confidence in opinion sharing, especially to those who are more introvert.

Conversely, with the critical thinking tendency, CRD is largely enriched and enhanced both in its contents and forms. Students tend to be more active in implementing every step of CRD. The pursuit of logic and coherence makes for the active participation in CRD.

Conclusion

There is no denying the fact that to frequently employ the CRD in Comprehensive English class is a bold but rewarding attempt. CRD is time-consuming for its essential steps to cover. Nevertheless, it is rewarding because it makes for the development of the students' confidence, language proficiency and competence. By conducting CRD in Comprehensive English class in the Application-oriented college, the author arrives at the conclusion that CRD facilitates CT ability since it succeeds in achieving the goals of application, analysis, synthesis and evaluation in Bloom's cognitive information processing. CRD helps students to critically formulate their views. During CRD, the students with relatively low English proficiency are also able to develop their thinking skills when following the CRD steps illustrated in this paper. That provides a new perspective of developing the CT ability in Application-oriented college. At the same time, there is also a bad need for teachers to improve their self-critical awareness, fully realize the urgency and importance of developing students' critical thinking, and create a classroom culture that tolerates failure, dares to doubt and makes bold challenges.

Despite the effectiveness in developing students' CT during CRD, the limitation of this research remains in its applicability. Whether the study may be applied widely to other fields need further empirical analysis.

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