An Empirical Study of The Impact of Critical Teaching on Non-English Majors' English Writing

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Thesis Submitted in partial fulfilment for the award of the degree of Professional Doctorate

Institute Of Education and Humanities

Centre For Humanities and Social Sciences

University of Wales Trinity Saint David

2022

DECLARATION

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

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STATEMENT 1

This thesis is the result of my own investigations, except where otherwise stated. Where correction services have been used the extent and nature of the correction is clearly marked in a footnote(s). Other sources are acknowledged by footnotes giving explicit references. A bibliography is appended.

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ACKNOWLEDGEMENTS

I am appreciative of the help and supports offered by lots of people during the journey of my study. I want to give my sincere gratitude to my supervisors Dr. Jessica Clapham, Dr. Ros Coard and Dr. Iain Jones. Their valuable expertise and experience gave me constant inspiration, without their precious suggestion and patient guidance, I would never have finished this thesis successfully. I am also very grateful to Dr. Thomas Jansen, the director of our programme, Dr. Paul Wright and other teachers who gave me a lot of advice and enlightenments for my study.

My special gratitude goes to the local university for offering me the precious chance to pursue my study. Many thanks and sincere appreciation for the support and cooperation of the students and teachers in the local university who participated in my study, without their assistance, I could not have done my study on time.

I must give my heartfelt appreciation to my family members in particular. My parents gave their selfless supports to help me pursuing my dream, took care my little daughter during my absence during these years so that I could focus on my study. My husband's constant encouragement and love were the sources of strengths for my persistence and my parents-in-law's constant care and help brought me enormous courage in the special time of COVID-19. My two lovely daughters brought me a great deal of happiness and joy, their understanding and supports were the source of hope and motivations throughout my study period.

ABSTRACT

It was found from the literature review that most critical thinking research focused on theoretical study, few empirical studies based on real corpus in class; the research objects were mainly English majors, while the research on non-English majors' college English education was insufficient. In order to fill the research gap in this area, this study took an empirical study regarding the impact of critical teaching on non-English majors' English writing and analysed the collected the data from the actual English classes in a local university, for the purpose of exploring an effective teaching mode for improving students' critical writing ability according to non-English major's characteristics and trying to provide some inspiration for the reform of the college English writing education in China.

This study took an experimental critical writing teaching in two freshman classes of non-English majors for 16 weeks and employed mixed research methods to analyse the data from questionnaire, interviews and writing tests to research the college students' critical writing ability comprehensively. Based on the theories of second language acquisition (SLA) and constructivism, a new English critical writing teaching mode for cultivating non-English majors' critical thinking through English writing teaching was proposed in the study.

This study integrated the cultivation of critical thinking into English writing teaching, helping students develop their abilities of making analysis, inference, judgement and conclusion in their English writing. Both the teacher's critical awareness and the students' critical thinking quality were promoted. An innovative critical writing teaching mode was proposed from teaching objectives, teaching content, teaching methods,

and evaluation. The data analysis revealed the current status of non-English majors critical thinking disposition and English writing abilities in China, which could provide some references for future related research and the reform of college English writing education.

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List of Abbreviations

APA :American Psychological Association

CBI: Content-based Instruction

CCTDI: California Critical Thinking Disposition Inventory

CCTDI-CV: California Critical Thinking Disposition Inventory Chinese Version

CT: Critical Thinking

CTD: Critical Thinking Dispositions

CTS: Critical Thinking Skills

EFL: English as a Foreign Language

ESL: English as a Second Language

FLTRP: Foreign Language Teaching and Research Press

NEMT: National English Matriculation Test

NCEE: National College Entrance Examination

RQ: Research Question

SLA: Second Language Acquisition

S: Student

T: Teacher

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Chapter 1 Introduction

According to the *Guidelines for College English Teaching* (2020 edition), one of the core objectives of college English teaching in China is to train students to use language skills comprehensively, and it also points out clearly that students' ability to think and express in English should be improved. From the cognitive perspective, English writing and the process of thinking are closely related, which is the relationship between form and content, that is, language is a tool of thinking, and thinking is the content of language. English writing is a key skill to measure the comprehensive knowledge of English, and it plays an irreplaceable role in developing the logic, accuracy and reasoning of students' thinking.

However, there are few studies on critical thinking and the application of critical teaching in college English classrooms in China. In 2010, Professor Huang Yuanshen (2010) talked about "critical absence", emphasizing that the curriculum of English major must be reformed thoroughly (Huang Yuanshen, 2010, pp.11-16). Critical writing gradually attracted attention from foreign language educators. In the current college English class, writing training has not been attracted much attention, and there is a phenomenon that students are upset when they talk about writing, and teachers feel headaches when they check students' writing. The main problems in students' writings are mainly manifested in poor writing content and Chinese thinking expression, weak in overall planning and cohesion ability, and many grammatical errors. At the same time, students don't get enough training for English writing in class. Most of the time, teachers just point out grammatical errors and supply templates for students to recite. As a result, college students lack the ability of critical thinking in English writing and their writing performance are poor.

At present, there are relatively few research on cultivating students' critical thinking tendency through English writing teaching for non-English major college students in China, and the related theories and training models are not mature enough. Therefore, this research is trying to integrate the cultivation of critical thinking into college English writing teaching based on the theory of critical thinking and constructivism, exploring a new and effective writing teaching model, which would play a positive role in promoting the theoretical development of college English teaching reform. The present experimental research is to verify the effect of the critical English writing teaching model on cultivating students' critical thinking and promoting English writing proficiency, so as to provide a theoretical reference for college English writing teaching.

1.1 Purpose of the study

This study focuses on the teaching reform of non-English majors, attempts to rethink the teaching objectives, teaching content and teaching methods of writing courses from the perspective of cultivating the critical ability of non-English majors, and strives to adopt a comprehensive teaching method and orientation for college English classrooms in China.

1. Constructing a new college English critical writing teaching model, combining writing skill training with critical ability cultivation, and transform the teaching concept into an operable and effective teaching plan, trying to solve the problem of lacking critical ability training in college non-English majors' writing teaching. It could play a positive role in cultivating innovative talents with critical thinking skills by changing teaching concepts. By carrying out teaching experiments and exploring new teaching model, the students' ability of independent learning and critical thinking would be gradually cultivated to meet their own development needs and meet the needs of social development and

international communication. Through in-depth research of writing classroom design, grasping the latest developing trends of writing courses, and adopting the latest teaching and research methods to improve students' writing level.

2. Improving teachers' critical teaching quality. First of all, teachers must be deeply aware of the importance of cultivating students' thinking ability. The traditional writing teaching mode should be changed and taking the cultivation of students' thinking ability as one of the main teaching aims. Second, in order to help students to become critical thinkers, teachers must have a higher sense of critical thinking. To a certain extent, the depth and breadth of teachers' thinking will have a direct impact on the development of students' thinking ability. Therefore, in the process of writing teaching, teachers must always be aware of the importance of thinking consciousness and striving to improve their own critical ability, so as to carry out higher-level writing teaching with a broader vision, guide students to think comprehensively, and help students improve their critical thinking level gradually. Only when teachers have good thinking ability can they guide students better. Teachers should continuously improve their own critical ability in daily life and teaching, expand their knowledge by reading more excellent articles and learning from some brilliant teaching examples.

3. Encouraging students to develop good study habits and improving their meta-thinking ability. In teaching activities, attention should be paid to the training of thinking ability in the design of teaching links and carry out group critical thinking ability training to promote student cooperative learning. In the arrangement of teaching content, the explicit teaching goal of "thinking ability" should be clearly proposed to students, so that they could actively reflect on their own inadequacies during the learning

process and make up for their shortcomings in learning activities timely. Teachers should focus on improving students' meta-thinking ability in teaching activities, that is, cultivating students' ability to blurt out English expressions in teaching activities. Carrying out teaching activities aimed at cultivating students' thinking ability, students could be allowed to choose topics and speak boldly.

4. Innovating English writing evaluation system. The traditional writing evaluation adopts summative evaluation, which is to give an overall assessment for students' articles, focusing on students' language expression ability, and failing to make effective evaluations of students' writing process and critical abilities. On the contrary, critical writing evaluation should focus on the writing process and guide students to think actively and stimulate their interest in writing by means of discussion and repeated revision. A clear evaluation standard is of great significance for promoting students' writing skills and cultivating students' critical abilities. Teachers should combine students' mutual evaluation and teacher' evaluation together to evaluate students' writing. Students' analytical and critical abilities could be improved through mutual evaluation. In addition, teachers can rely on professional writing platforms, such as Pigai.com and i-Write intelligent review system, take advantage of big data to evaluate students' writing practice more comprehensively, accurately and objectively.

1.2 Rationale for the study

In September 2016, the *Core Competencies and Values for Chinese Student* (2016) was released in Beijing and has been implemented in China since then. The rational thinking, critical questioning and scientific spirit were emphasised, and clear requirements were put forward at the 18th National Congress of the Communist Party of China. It is required that

students should cultivate the awareness of critical questioning; be able to think meticulously and judge independently; could analyse problems dialectically from multiple angles and make the best choice. From my own teaching experiences as a college English teacher for more than 15 years, it is found that more and more students are used to searching for answers on the internet when confronting some problems, and they often feel at a loss facing the complicated information for lacking enough critical ability. It is necessary to construct an effective teaching mode to improve students' critical thinking ability, so that they could be good at analysing problems, distinguish and classify information effectively, avoid blind obedience, and become innovative and creative.

Critical thinking, as an important competency of English subject, should be integrated into the English writing teaching, which implements the *Guidelines for College English Teaching* (2020 edition) to develop core competency of English subject, reflects the basic values of higher education reform. It is of great theoretical and practical significance to promote students' diversified development and enhance their comprehensive quality in English writing teaching at the stage of college education.

In terms of theory perspective, critical writing teaching is of great significance to college English education. At present, there are not many studies on the core competency of the English subject in China, but still in the initial stage compared with Western countries. Most of the research is about the current situation, problems, reasons and suggestions for the core competency development, but there are few studies on a certain dimension of the English discipline. From the dimension of critical thinking in the English subject, this study is to explore the impact of critical writing teaching on college students' English writing, which can provide a

theoretical reference for enhancing college students' critical writing ability.

In terms of practical significance, there are relatively few studies on the critical thinking of non-English majors in China, and the research of college students' overall critical thinking level is not enough. Among them, Wen Qiufang and Liu Runqing (2006) took a research about the content of English majors' argumentative essay to study students' critical ability in writing, the results exposed students' weak critical writing abilities (Wen Qiufang and Liu Runqing, 2006, pp.49-59). In view of the current situation that college English writing teaching is separated from thinking training, Yu Jiying (2014) constructed an integrated writing teaching model based on CBI (Content-based Instruction) teaching theory critical thinking concept (Yu Jiying, 2014, pp.20-28), but she didn't take empirical study to verify the feasibility and effectiveness of the model. The present study explored to construct a new writing teaching model incorporating critical thinking training to improve the English writing ability of college students. the study took an experimental teaching that integrated the cultivation of critical thinking skills into English writing teaching activities and verified the effect of this teaching mode on improving students' critical writing ability, which could provide reference for the implementation of this teaching mode from the practical level.

In response to college English curriculum reform in China, a front-line teacher must update teaching concepts and improve teaching methods. Based on the three stages of English writing teaching proposed by Qi Jiaming and Zhu Sha (2018), such as: pre-writing reading, multi-task writing, and post-writing evaluation (Qi Jiaming and Zhu Sha, 2018, pp.48-50), this study absorbed the excellent teaching ideas to explore a new English writing teaching mode, emphasizing critical discussion, peer

evaluation and teacher's feedback, which combined critical thinking into English writing process for promoting both the students' critical writing skills and the teacher's own development.

1.3 Structure overview of the Thesis

There are 7 chapters in the thesis.

In the first chapter, four research objectives were put forward and the rationale of the study based on the requirements of *Guidelines for College English Teaching* (2020 edition) from theory perspective to practical significance.

Chapter 2 consists of literature review. In this part, the different definitions of critical thinking were introduced, the elements of critical thinking's skills and sub-skills were reviewed, four main debates about teaching and learning critical thinking were presented. Many studies about the relationship between critical thinking and writing abilities both in Western countries and in China were reviewed, the relevant research on the influencing factors and teaching strategies related to critical writing teaching were summarized. Some major theories related to critical writing teaching were introduced, such as: second language acquisition theories put forward by Brown (2002) and Lightbown and Spada (2006), critical thinking theory proposed by Elder (2002), constructivism by Piaget school, Krashen (1985)'s Input Hypothesis and Swain (1985)' Output Hypothesis. The relationship between the research of second language acquisition and pedagogy was explored as well.

Chapter 3 is about the experimental design and process in the study. The research questions of the study were explained, and the related research methodology and instruments were introduced in detail. At the same time,

the role of the researcher and the participants in the study were also introduced. The research procedures were described systematically from the pre-test, the experimental teaching design and the post-test. The methods of data collection and the approaches of data analysis were explained, including the thematic analysis, the pilot study, and analysed the present study as a case study. The content of the experimental teaching was illustrated from the textbook and the teaching procedure. In the meanwhile, the triangulation was described in detail to certify the validity and the reliability of the study.

In chapter 4, the collected data from the adapted CCTDI-CV(California Critical Thinking Disposition Inventory Chinese Version) in both pre-test and post-test of the two classes in the present study were analysed and compared in order to find out the current status of critical thinking disposition. Thematic analysis was applied to analyse the interviews of both the students and the teacher participating in the experimental instruction. The writings of students in both pre-test and post-test were evaluated by critical writing marking criteria adapted from Stapleton (2001)' critical writing rating model, the findings revealed the changes of students' critical writing aptitudes.

Chapter 5 made the results comparison with earlier related research and discussed the findings of the present study according to each research questions correspondingly.

Chart 6 focused on the pedagogical implications of the study, from discussing the goal of thinking ability training in English writing course to the construction of the teaching mode for critical English writing.

The last chart put forward some recommendations for teaching practice and some implications for the institution, summarized the contributions of the

study, pointed out the limitations and put forward some recommendations for further research.

Chapter 2 Literature Review

Chapter 2 consists of literature review. It provides background on different definitions of critical thinking, and a review of elements of critical thinking's skills and sub-skills. Specifically, this chapter discusses theoretical perspectives from the literature on second language acquisition theories put forward by Brown (2002) and Lightbown and Spada (2006), critical thinking theory proposed by Paul and Elder (2002), constructivism by Piaget school, Krashen (1985)'s Input Hypothesis and Swain (1985)' Output Hypothesis. The discussion encompasses the connection between critical thinking and English writing. Finally, the chapter reviews the critique of existing literature, and identifies the gap which the study addresses.

2.1 Introduction

The origin of critical thinking can be traced back to the ancient Greek thinker Socrates 2500 years ago. "Socratic questioning" has been the most popular method for guiding and inspiration. The concepts of critical thinking were developed continuously. Up to the 20th century, American social scientist William Graham Sumner, one of the most influential teachers at Yale, pointed out the importance of developing critical thinking in life and education. He believed that criticism was the examination and question of existing ideas. Through criticism, we can understand whether they are in line with the facts. Critical ability is the product of education and training, and critical thinking is the basic ability that human beings should have (Bannister, 1979, p.98). It is difficult for a teacher to develop critical thinking if he or she insists on giving students accurate knowledge and using traditional teaching methods.

The famous American philosopher and educator, John Dewey, was the

reformer of traditional education at that time. Based on the theory that education is the transformation of life, growth, and experience, he proposed that education should be student-centred, activity-centred, and experience-centred, which is different from traditional education. Dewey advocated "learning by doing". He believed that education could pass the accumulated experience on, enhance the ability to guide life and adapt to the society. In the process of education, people should not be constrained by tradition, they should be able to express their own opinions freely and seek relevant evidence through their own efforts. They should be able to stand their ground in the face of prejudice. "The most important problem of moral education in the school concerns the relationship of knowledge and conduct." (Dewey, 1997) Dewey's views coincide with Sumner's views to some extent. According to Dewey, criticism is not about finding mistakes, nor to discover shortcomings. Criticism is the judgment of value, thinking about what is better and what is worse, and why it is better and why it is worse, no matter in what field and era. Cultivating students' critical ability requires efforts to cultivate students' critical courage, philosophical thinking ability and personality.

Since the 1980s, the United States, the United Kingdom, Canada, Australia, New Zealand, the Philippines, and even China, have made "critical thinking" one of the goals of higher education. The World Conference on Higher Education (Paris, 5-9 October 1998) issued a Declaration on Higher Education for the Twenty-first Century: Ideas and Actions. The first article is titled *The Mission of Education and training: Fostering Critical and Independent Attitudes*. In article 5: *Innovation in Educational Methods: Critical Thinking and Creativity*, points out that institutions of higher education must educate students to become citizens with rich knowledge and strong motivation. They can think and analyse

problems critically, find solutions to social problems, and take social responsibility. To achieve these goals, the curriculum needs to be reformed to go beyond a simple cognitive grasp of subject knowledge, and the curriculum must include aims to acquire critical and creative analysis skills in multicultural settings, independent thinking, and collective work skills.

2.2 Critical Thinking (CT)

As a theoretical concept, there are different definitions related to critical thinking in the areas of philosophy, education, psychology and intelligence. For instance, philosopher as Dewey (1933) deemed that the concept of critical thinking dated from ancient Greek philosophy. "Critical" is derived from the Greek words "kriticos" and "kriterion". "Kriticos" means the ability to ask questions, understand the meaning of something and have the ability to analyse, and the ability to discern or judge. "Kriterion" has the meaning of standard. Educator such as Facione (1990) paid more attention to how to cultivate students the ability of critical thinking and the testing criteria of students' critical thinking. They are more interested in the outcomes of critical teaching. Psychologist as Sternberg (1985) studied the cognition of critical thinking and the mental activities associated with critical thinking. Specialist in intelligence like Beyer (1987) regarded critical thinking as a key factor for effective analysis. These authors have been chosen because their well-known concepts explained the development of critical thinking, described the key elements of critical ability and demonstrated the application of critical thinking in modern education, which provided the foundation for the study of critical thinking education.

In order to better understand the term of critical thinking, I want to illustrate from the evolution process of critical thinking and many

definitions of critical thinking.

2.2.1 The Definition of Critical Thinking

The specific term "critical thinking" was first found in the book *Thinking and Learning to Think,* (Schaeffer,1901). and there are multiple terms to describe high quality thinking in the book, including clear thinking, distinct thinking, adequate thinking, and exhaustive thinking.

Even if John Dewey was regarded as the father of modern critical thinking, he preferred the expression of reflective thinking to critical thinking. Dewey defined reflective thinking as:

> Active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends constitutes reflective thought.
>
> (Dewey, 1933, P.9)

As an important quality for lifelong learning, critical thinking appeared in the *National Educational Goals* at the beginning of the 21st century: "The proportion of college graduates who demonstrate an advanced ability to think critically, communicate effectively, and solve problems will increase substantially." (National Education Goals Panel, 2011)

Scholars from different fields have diverse understandings of critical thinking, the more literature as I reviewed, the more different definitions I found. There is not a universally accepted definition related to critical thinking. As Barry Beyer once wrote: "The term critical thinking is one of the most abused terms in our thinking skills vocabulary. Generally, it means whatever its users stipulate it to mean." (Beyer, 1987, p. 32). In order to distinguish critical thinking from non-critical thinking, there are two main kinds of explanations. Some scholars defined critical thinking as a described noun, while the others regarded critical thinking as a

qualitative thinking activity. In spite of the existing differences, there are some common characters in in various definitions, such as: systematic thinking, information analysis, justified inference and evaluated conclusion. The following definitions from the educational perspective are related to the present study.

As an education professor in Columbia University, Edward Glaser conducted the research of teaching students critical thinking and gave the earliest definition of critical thinking in 1941. He defined critical thinking as:

> The ability to think critically, as conceived in this volume, involves three things: (1) an attitude of being disposed to consider in a thoughtful way the problems and subjects that come within the range of one's experiences, (2) knowledge of the methods of logical inquiry and reasoning, and (3) some skill in applying those methods.
>
> (Glaser, 1941, p. 5)

Peter Facione launched a survey of critical thinking's current status and assessment funded by American Philosophical Association in 1990. Participants came from a wide range of areas such as philosophy, education, psychology, social sciences, physics and so on, they found that it was necessary to have a clear definition for critical thinking. The experts reached an agreement on the meaning of critical thinking:

> We understand critical thinking to be purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based. CT is essential as a tool of inquiry. As such, CT is a liberating force in education and a powerful resource in one's personal and civic life.
>
> (Facione, 1990, p. 3)

Facione used the definition as the basis for the California Critical Thinking Skills Tests (CCTST) and the California Critical Thinking Dispositions

Inventory) (CCTDI).

After reviewing may literatures about critical thinking, I deem that the term critical thinking means a special quality of thinking. Critical thinking is actually the methods one employs to realize the thinking task as well as the activities and skills one takes in the thinking process. It means the act of thinking with a critical attitude and the deliberate process to reach thinking tasks.

2.2.2 Critical Thinking Skills

Critical thinking skill is cognitive aptitude that one could master and do something competently. There is a challenge to understand and evaluate the critical thing skills, because different scholars use different approaches to describe the skills. Some researcher like Beyer (1985) concentrated on individual behaviours such as personal interpretation. Some specialists as Fisher & Scriven (1997) focused on the effect of the thinking activity. Some expert like Halpern (2003) paid more attention to high-level cognitive thinking skills such as inference and evaluation, and Paul and Elder (2006) emphasized person's overall abilities.

Critical thinking is very effective to integrate all available information and justify hypothesises or conclusions when exploring some problems and questions or inquiring some situations. Some cognitive skills are indispensable for critical thinking, for instance: information interpretation, information analysis, information evaluation, data synthesis, evidence inference and justification ability. Facione (1990) led APA (American Psychological Association) study identified critical thinking skills with related sub-skills. For instance: Categorization, decoding significance and clarifying meaning are the sub-skills affiliated with the skill of interpretation. Examining ideas, identifying arguments, and analysing

arguments are attached to the skill of analysis. Assessing claims and arguments belonged to evaluation. Inference's sub-skills are querying evidence, conjecturing alternatives, and drawing conclusions. Stating results, justifying procedures, and presenting arguments are the sub-skills affiliated with the skill of explanation. In order to become conscious of one's cognitive actions, self-examination and self-correction are necessary for evaluation one's own inferential judgments. Self-examination and self-correction are attached to the skill of self-regulation (Facione, 1990, pp. 13-19). These skills were cited by a number of articles and studies, such as a critical thinking study by the US Department of Education (Jones *et al*, 1995). Facione (1990) summarized the skills of critical thinking studied by the APA (American Psychological Association). After reviewing and comparing the skills described in critical thinking related literature, it was found that critical thinking skills should include these key aspects: Interpretation, analysis, evaluation, inference, synthesis, explanation, and self-regulation. The following table adapted from Facione (1990)'s summarization of the selection of the skills and sub-skills comprehensively and reasonably.

Table 2.1: Critical Thinking Skills and Sub-Skills

Interpretation	Analysis	Evaluation	Inference
➢ Categorization; ➢ Decoding significance; ➢ Clarifying meaning; ➢ Interpreting data; ➢ Comprehending language; ➢ Judging statements; ➢ Interpreting information; ➢ Judging observation criteria; ➢ Interpreting context.	➢ Examining ideas; ➢ Identifying arguments; ➢ Recognizing logical relationships; ➢ Recognizing principles; ➢ Analysis arguments; ➢ Recognizing logical inconsistencies or fallacies.	➢ Assessing claims and arguments; ➢ Appraising evidence; ➢ Identifying unstated assumptions; ➢ Distinguishing between verifiable facts and value claims; ➢ Evaluating sources of information; ➢ Distinguishing relevant from irrelevant information; ➢ Detecting bias or unwarranted claims.	➢ Querying evidence; ➢ Conjecturing alternatives; ➢ Drawing conclusions; ➢ Drawing generalizations; ➢ Judging deductions; ➢ Judging inductions; ➢ Constructing arguments supporting judgment.
Explanation	**Self-Regulation**	**Synthesis**	
➢ Stating Results; ➢ Justifying procedures; ➢ Presenting arguments; ➢ Interacting with others; ➢ Present a coherent and persuasive argument; ➢ Use matrices and other diagrams for communication.	➢ Self-examination; ➢ Self-correction; ➢ Refraining from jumping to conclusion; ➢ Retention of an open mind; ➢ Being aware of own point of view and biases; ➢ Seeking out contradictory evidence; ➢ Using the metacognitive knowledge.	➢ Synthesizing of considerations; ➢ Synthesizing information from a variety of sources.	

Adapted from the identification in Facione' s American Philosophical Association (APA) study (1990)

2.2.3 Critical Thinking Dispositions

American educator Beyer (1987) emphasised the importance of critical thinking disposition. He claimed that even if equipped with the skills of critical thinking, it is not sufficient to make sure that one person will make use of the approach of critical thinking. What is more important is that the person must have the willingness to thinking critically. That is to say that the disposition is crucial for a thinker to do some endeavour and think critically. Dewey (1933) put forward three fundamental dispositions: open mindedness which means get rid of bias and injustice, whole heartedness refers to sincere enthusiasm, and responsibility implies willingness to take the consequences. In *How We Think*, he remarked that a thinker needs more than skills:

> Knowledge of the methods alone will not suffice; there must be the desire, the will, to employ them. This desire is an affair of personal disposition. But on the other hand, the disposition alone will not suffice. There must also be understanding of the forms and techniques that are the channels through which these attitudes operate to the best advantage
>
> (Dewey, 1933, p.30)

Glaser (1941), a famous scholar in Columbia University, lay great emphasis on individual characteristics especially thinking dispositions, because they deem if the person does not have a motivation, he or she will not think critically in spite of having the required skills for critical thinking.

Facione (2000) described comprehensive kinds of dispositions when he wrote about California Critical Thinking Disposition Inventory (CCTDI) in his articles, including: open-mindedness, critical thinking self-confidence, truth-seeking, inquisitiveness, systematicity, analyticity and maturity of judgment (Facione et al. 2000, p.74)

It was found that comprehensive dispositions list offers a valuable major

dispositions summation that facilitate and activate individual to think critically. Six dispositional characteristics for critical thinking were summarized: willingness to engage in intellectual effort, systematic, persistent, intellectual integrity, being open-minded and intellectual curiosity, and these are summarised in the following table 2.2.

Table 2.2: Critical Thinking Dispositions Details

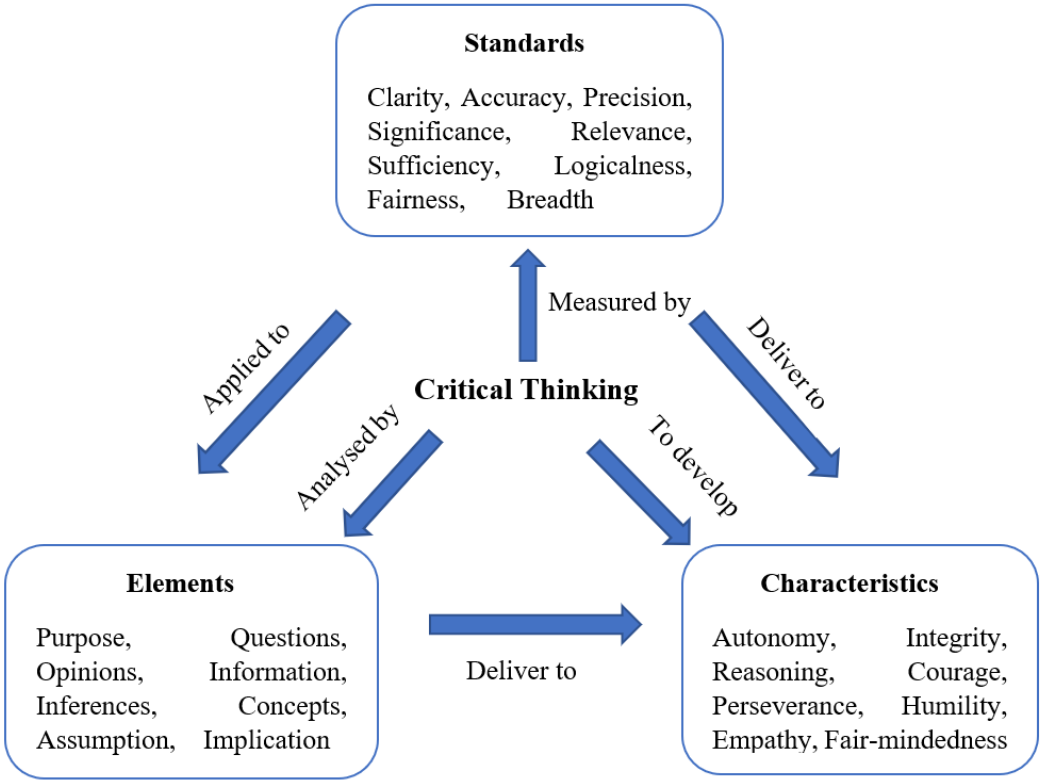
Willingness to Engage Intellectually	**Systematic**	**Persistent**
➢ Consciousness to think critically; ➢ Trustiness in reasoned inquiry; ➢ Intellectual courage; ➢ Being mindful; ➢ Confidence in reason; ➢ Ability to handle uncertainty; ➢ Insight beyond the obvious; ➢ Thinking extensive before responding; ➢ Seeking distinction and avoid absolutism.	➢ Willingness to plan; ➢ Considering all situations; ➢ Seeking a clear statement of the question; ➢ Dealing in an orderly manner; ➢ Stating the question clarity; ➢ Focusing attention on the matter; ➢ Diligence in seeking relevant information.	➢ Persist in carrying out a thinking task; ➢ Intellectual Perseverance; ➢ Self-discipline; ➢ Persistent in seeking precise results; ➢ Persistence though difficulties.
Being Open-Minded	**Intellectual Integrity**	**Intellectual Curiosity**
➢ Objectivity; ➢ Open-mindedness Considering other points of view seriously; ➢ Reasoning from disagrees; ➢ Fairmindedness; ➢ Flexibility in alternatives; ➢ Appreciating perspectives ➢ Tackling alternative situations.	➢ Willingness to self-correct; ➢ Willingness to change judgments; ➢ Withholding judgment when reasons are insufficient; ➢ Intellectual Autonomy; ➢ Caution in suspending judgments; ➢ Ethics integrity; ➢ Truth-seeking; ➢ Honesty.	➢ Seeking to be well informed; ➢ Inquisitiveness; ➢ Curiosity; ➢ Examining viewpoints deliberately; ➢ Using credible sources; ➢ Seeking alternatives; ➢ Seeking reasons; ➢ Seeking evidence.

Adapted from the identification in Facione' California Critical Thinking Disposition Inventory (2000)

2.2.4 Critical Thinking Model

Research on critical thinking in Western countries have accumulated to a certain extent and formed a systematic theoretical framework. American scholars Paul and Elder (2002) proposed a critical thinking model mainly includes three dimensions, namely reasoning elements, intellectual standards, and characteristics. The specific manifestations are as follows: (1) Critical thinking can be analysed through the eight elements such as purpose, questions, opinions, information, inferences, concepts, assumption and implication, which constitute a circular chain of critical thinking; (2) Critical thinking can be measured by rational standards such as clarity, accuracy, precision, significance, relevance, sufficiency, logicalness, fairness and breadth; (3) The cultivation of critical thinking can form the intellectual characteristics such as autonomy, integrity, reasoning, courage, perseverance, humility, empathy and fair-mindedness (Paul and Elder, 2002). The model summarized the elements, standards and characteristics of critical thinking concisely, making critical thinking visualized and conceptualized with strong operability, which is in line with the goal and internal requirements of English writing course.

Figure 2.1 Paul & Elder Critical Thinking Model



Wen Qiufang (2009) proposed a hierarchical theoretical model for constructing critical thinking measuring tools. The model divides critical thinking ability into two levels: (1) Meta-critical thinking ability, which refers to self-regulation ability, including skills such as planning, checking, adjusting, and evaluating one's own critical thinking ability; (2) Critical thinking ability, including cognitive and emotion. The cognitive part covers skills such as analysis, reasoning and evaluation; criteria like clarity, relevance, logic, depth and flexibility. while the emotion part includes curiosity, openness, self-confidence, discipline and perseverance (Wen,2009, pp.37-43). The theoretical model developed by Wen provides a theoretical framework for the measurement and evaluation of critical thinking.

The critical thinking theory has the following implications for this study:

(1) There are many similarities between critical thinking elements and the quality requirements of critical writing teaching. For example, critical thinking emphasizes purpose, and critical writing teaching also focuses on conveying information, explaining facts, demonstrating opinions, commenting on facts and other writing intentions; (2) The standard of rationality for critical thinking is similar to the standard of consistence and sufficiency in critical writing. For instance, the requirement of accuracy for critical writing is roughly the same as the standard of critical thinking in terms of clarity and precision; (3) Writing is closely related to thinking. The language expression problems in the writing process are largely related to the learners' unclear thinking and lack of logic. Critical writing teaching, as a writing method different from conventional writing, reduces rote recitation and template writing, encourages students to understand and use critical thinking elements and standards to review writing content, evaluate and modify writing results, thereby promoting the development of students' critical writing skills.

In this empirical study, students' writing would be assessed according to the specific criteria of clarity, relevance, logic, and depth put forward by Stapleton (2001). Clarity requires students to be able to write in a standardized language to express their opinions clearly to let readers understand clearly. Relevance requires the arguments and examples in students' writing should be related to the topic. Logic requires that all the arguments in their writing are reasonable, the views are complementary with each other, and there is not any contradictory or logical error. Depth requires students to take into account the complexity and the multiplicity of the problem in the specific situation and use relevant theories to conduct in-depth analysis in the argumentation.

2.2.5 Debates about Critical Thinking

From the review it was found that most scholars approved that students could promote their critical thinking ability by education and training (Pithers and Soden, 2000, pp.237-249). Gelder (2005) claimed that critical thinking skills can be trained in the similar way as other cognitive skills are trained. In order to train students to be critical thinker, they should be taught critical thinking theories and related concepts, create the opportunity for them to practise the learnt critical skills in real situations, and train them to transfer these skills to various situations (Gelder, 2005). Researchers showed disagreement about teaching the ability of critical thinking and studying critical thinking skills (Fuiks and Clark 2002, pp.1-128). There are debates about teaching and learning critical thinking, focus on the follow four aspects: 1. Where should critical thinking skills be taught? 2. Which critical thinking skills should be taught? 3. How should be taught? 4. Whether technology could help students to learn critical thinking skills? These four debates are significant for the overall purpose of the study because they highlight whether the cultivation of students' critical thinking could be combined with the teaching English writing and explore the effective way for critical writing instruction.

Debate one: Where should critical thinking skills be taught?

Scholars disagreed about where critical thinking skills should be taught: whether critical thinking skills should be taught as a specific course in which critical thinking skills could be trained as a set of isolated skills or be taught in general courses integrated with other subjects (Perkins and Salomon, 1989, pp.16-25). Advocates of teaching critical thinking as a specific course advise that it should be trained as a dedicated programme in order to teach students critical thinking theories, concepts, and skills as

a specific course. For example, Gelder (2005) said students should master the basic elements critical thinking, such as: the theories, the related concepts and specialized skills (Gelder, 2005, pp.41- 48).

The findings of several research proved that the most effective approach to improve critical thinking is to teach the background of theory. For instance, Kuek (2010) approved of teaching critical thinking skills by the way of dedicated classes. He made an experiment with two groups of first year students which were selected randomly at Upper Nile University for a 12-week intervention in Sudan. The 15 students in the first group were trained the critical thinking skills such as reasoning to improve their ability of argumentative writing. They were trained through integrated strategies as group discussion, interactions, and scaffolding in small groups. The compared group of 12 students studied the same skill of reasoning, but without the theory of critical thinking and other skills. There were considerable differences between the two groups. Students' critical thinking, reasoning, and argumentative writing skills in the first group increased drastically after the experiment. Furthermore, students' critical thinking attitudes enhanced at the same time. This outcome was consistent with the results of Bensley (Bensley. *et al*. 2010, pp. 91-96) and Alwehaibi (2012) who did the similar research experiments in respective counties. These findings provide evidence for the researchers' viewpoints that critical thinking skills should be taught explicitly, in the similar way as other cognitive skill (Alwehaibi, 2012, p.193).

Contrasting to the preceding method, Hatcher (2006) took a 15-year study of freshman to senior at Baker University. From the data he found that integrated approach was much more effective in promoting students' critical thinking abilities and argued that critical thinking skills must be a major part of any teaching program and learners should apply these skills

into practice as much as possible. He claimed that an incorporated methodology of critical thinking teaching would attain considerably better consequences than training critical thinking as an isolated course. Furthermore, he stated that one of the positive consequences of this method is that it is feasible for teachers from different disciplines to offer the required coaching in critical thinking skills as portion of their usually educated courses, rather than depending on picking teachers to train the skills in an unaided course.

At the same time, Duron, Limbach, and Waugh (2006) argued that all disciplines ought to design and manage curriculums in a way to make sure that students successfully develop their critical thinking abilities. They put forward a five-step learning structure centring on critical thinking theory and high-quality practices for application, benefit studying environments, and results evaluations. They claimed that this model could be applied in any curriculum and would inspire students to participate in critical thinking learning. This model involves the following steps: 1. establishing education goals; 2. teaching via inquiring; 3. practising before evaluation; 4. reviewing, refining, and improving; 5. offering feedback and commenting the learning. Therefore, applying critical thinking teaching demands student-centred learning activities. Furthermore, teachers should reflect the instructional processes and consider efficiency of the teaching approach (Duron, Limbach, and Waugh, 2006, pp.160-166). This model has a great insight for the following studies on cultivating students' critical habits through classroom activities.

Summarising, whether to teach critical thinking skills as a specific course focus on theory and skills or teach students critical thinking skills as part of any course through various learning activities in order to cultivate students to become critical thinker, each approach has its own advantages

and disadvantages. For instance, the first approach attaches a great importance to the theory rather than practice but is restricted to some lessons and subjects. On the other hand, training students critical thinking abilities in every course will ensure students to grasp critical thinking skills. Nevertheless, this approach requires teachers equipped with additional facilitative skills and a motivating learning environment, and this forms the basis for the next debate.

Debate two: Which critical thinking Skills Should be Taught?

Due to the various definitions of critical thinking, there are some disagreements about which skills are necessary and effective to train a critical thinker. Many researchers have tried to define and classify the most essential critical thinking skills. Facione (1990) affirmed that critical thinking should be focused on self-judgement which would enhance analysis and reasoning skills, promote estimation ability, and make judgements upon suggestive and abstract opinions (Facione, 1990).

Taylor (2002), for instance, defined critical thinking skills as the ability to be able to argue one's reasons for one's opinions evidently. Moreover, he said that critical thinkers generally have their own viewpoint and at the same time have the skill to adjust their view when there are persuasive evidences (Taylor, 2002, p.12). Alwehaibi (2012) concentrated on the enhancement of five specific abilities: causal justifications, verifying the trustworthiness of information, arguments, estimates, and ascertaining part-whole relations. She claimed that this choice is according to students' educational level and the significance of critical thinking skills for students' studying and their everyday lives. (Alwehaibi, 2012, p.193).

In my opinion, the ability of critical thinking is of great significance to college students, in this era of information explosion, the most important

ability as a critical thinker is to reconstruct their thinking through analysis and effective evaluation, so as to master their own ideas and recognize their deepest values. Cultivating students' thinking ability in English writing teaching can not only improve students' language skills, but also cultivate students' thinking ability and improve students' comprehension quality.

Debate Three: How Should Critical Thinking Skills be Developed?

From literature we found a general agreement that critical thinking involves a series of psychological activities and skills such as understanding, analysis, assessment, reasoning, justification, and self-control. However, it is important for the teacher to decide how to teach and evaluate these skills. Actuality, employing approaches to educate and evaluate the progress of critical thinking skills is particularly complicated and varied.

Kuhn (1999) found that numerous research had discussed the efficiency of employing particular strategies to improve critical thinking skills, such as class debates, problem-based education, cooperative learning, discussion approaches, inquiring methods, and evidence-centred assignments (Kuhn, 1999, pp.16-46). Socratic questioning is one of the most widespread and influential teaching methods that could be employed to help learners in creating reflective questions, thus promoting their critical thinking abilities. Yang et al. (2005) researched the impacts of applying Socratic questioning to improve students' critical thinking abilities. They organized a 2-semester research and each semester consisted of 16-week with 16 undergraduate students in the US. The findings of their research suggested that, with proper design of curriculum and teaching interventions, critical thinking abilities could be developed

and supported by taking Socratic questioning approaches. Because this questioning method offers students the time required for careful analysis, creation, discussion, and contemplation. (Yang, Newby, and Bill, 2005, pp.163-181). Socratic questioning pays attention to in-depth reasoning and hypothesis, reflecting on self-thinking and beliefs. This kind of teaching always takes the cultivation of students' critical thinking ability as the ultimate goal. During the teaching, knowledge is not instilled by compulsory means, but inducing students to analyse and summarize step by step through questions and answers, help students make comprehensive judgments, and finally draw their own conclusions.

Hansen and Salemi (2012) took a study for utilizing class discussions to acquire better thinking skills. They said that during class discussion, students would generate their own solutions and interpretations and aim at comprehending and assessing the explanations and views of their classmates (Hansen and Salemi, 2012, p.98). They proposed five measures to plan a productive class discussion: 1. setting definite goals; 2. selecting materials; 3. organizing some guiding; 4. designing the process of the discussion; 5. specifying the duties and assessing the performance in discussion (Hansen and Salemi 2012, p.41). An active discussion will stimulate a flood of dynamic ideas and develop the ideas of all participants. Discussion could stimulate students' wisdom and make their thinking diverge and concentrate quickly, expand information exchange and bring vitality to the classroom. At the same time, through discussion, students could promote their expression skills and interpersonal abilities, enhance their perception of emotion.

Furthermore, writing has been applied as an approach in order to enhance critical thinking abilities extensively. Condon and Kelly-Riley (2004) claimed that writing plays the role of a vehicle for critical thinking

(Condon and Kelly-Riley, 2004, p.66). In earlier work, Cohen and Spencer (1993) offered a specific model for making use of writing to cultivate critical thinking abilities. They said that the process of writing presents a crucial structure through which learners could create opinions and explain their reasoning about the correlation between these thoughts. They further claimed that writing could be an efficient means for training students a crucial factor in critical thinking, that is, in what way to develop convincing arguments validated by reasoning and proof (Cohen and Spencer, 1993, pp.219-230). Writing is mainly based on human thinking and expressing people's thoughts through words. Critical thinking is of great significance in the process of teaching written English skills. The cultivation of students' critical thinking ability is the fundamental guarantee for improving the quality of writing. In the teaching of English writing courses, the teacher could provide students with more critical topics and enhance students' basic language knowledge. Guiding students to analyse actively and think about problems from multiple angles in the writing teaching not only could cultivate students' thinking ability but help them develop good thinking habits as well.

Pithers and Soden (2000) recommended problem-based learning (PBL) as a favourable strategy for improving critical thinking. Well-planned problem-based lessons are expected to inspire learners to think analytically about the subject. Students are expected to comprehend and investigate the key concerns related to the problems, propose a scheme to solve the problem, assess the planned solution, and make a decision on the last resolution. (Pithers and Soden, 2000, pp.237-249). Problem-based learning places learning in complex and meaningful real problem situations. By solving problems cooperatively, students would learn the knowledge embedded in problems, improve their effective problem-

solving skills, and develop their ability to learn independently, which could enhance the internal motivation of learning. In English writing class, teachers could prepare related topics, let students keep asking questions and find information in class, improve their knowledge constantly in the process of problem-solving, ultimately achieving the goal of improving writing skills and cultivating students' critical thinking ability.

The approaches of questioning, writing and problem-based learning are extremely analogous to universal skills for study. In college English teaching, various learning strategies are an organic whole with a complementary relationship, rather than being isolated and unrelated. Students would improve their language skills and critical thinking abilities by practicing constantly.

Debate Four: Could Technology Boost Students' Critical Thinking Skills?

Numerous scholars have tried to explore the role of technology in integrating education, and the utilization of technology to develop critical thinking skills. These research mainly focus on the following aspects: 1. employing technology with no instruction; 2. employing technology with direct instruction; 3. employing technology with indirect instruction.

According to Astleitner (2002), in the methodology of utilizing technology with no instruction, the technology plays as a device for resolving presented assignments without offering any instructional works related to critical thinking theories and abilities. Such as: PowerPoint presentation used by teachers to illustrate the lecture, word software used by students to finish their work, and the e-mail is used to communicate with others. In this methodology, technology does not give any knowledge related to critical thinking or any instruction about the way to operate them;

it simply performs as a means to help the process of education.

Duffelmeyer (2000) found that just using computer as a tool without offering any critical thinking skills is ineffective and did not develop critical thinking ability (Duffelmeyer, 2000, pp.289-307). conversely, Hopson (2014) remarked positive results of the utilization of computer devices as software of word processing, files and worksheets in fostering students' critical thinking skills when they were applied to keep notes, finish tasks, and fulfil assignments (Hopson, Simms, and Knezek, 2014, pp.109-119). These disparities in research results could be owing to the quick development of technology and requests further study. Nevertheless, making use of Internet technology as tools could make teaching and learning much more efficient, it does not ensure the development of critical thinking.

Technology is employed to realize explicit instructional purposes in the approach of utilizing technology with direct instruction. Such as using technology to enhance critical thinking abilities and making use of Internet websites to provide some teaching tasks. Gokhale (1996) studied the efficiency of combining computer simulation into old-style class activities to improve students' critical thinking abilities. He divided 32 students into experimental group and control group, took part in electronics lessons at a university in the United States. A simulation software based on computer supported learners to conduct experiment interactively with the essential techniques and making use of electronic tools. It feedbacked instantly and reliably. The results proved that the computer simulation software was efficient for inspiring students' abilities of analysis and inquiring (Gokhale, 1996, pp.36-46). The computer-based simulation could offer immediate and trustworthy reply which would provide students a chance to attempt various choices and assess their

viewpoints promptly. As an English teacher, it is crucial to make use of computer simulations for promoting both critical thinking abilities and language skills to assist students' English learning.

Besides, training and exercise systems provide encouraging research results. For instance, Ellis (2001) studied the efficiency of multimedia in promoting the critical thinking abilities which are essential for using learned knowledge in problem-resolving. In his research, a multimedia program for practice and exercise and computer-based tutorials were applied to the teaching of 38 university students in the United States. The results showed that multimedia-supported learning products are helpful to develop students' critical thinking skills potentially (Ellis, 2001, pp.107-124). Furthermore, some studying supervision procedures, for example Blackboard, could support student-centred learning. This method intends to improve students' independence and autonomy by transferring the obligation of learning to students and students would become vigorous participants in their own study and cultivates their reflective thinking skills in the learning process.

Contrast to the approaches mentioned above, employing technology with indirect instruction technology provide some instruction in a traditional education background, where the teacher still regulates and assesses the process of learning. From the literature, it appears obvious that this methodology had been researched more broadly than the two previous methods of combining technology into critical thinking training. There are various technology approaches could be utilized, for instance: internet-based learning, inquiry study, and online communication.

Mandernach (2006) claimed that making use of teaching technology on the internet to assist the traditional teaching in classroom have two

noticeable advantages for improving students' critical thinking: firstly, by using online learning, students can finish some easy tasks by themselves outside the classroom, so that teacher would have more time to organize some high-level activities to cultivate students' critical abilities; secondly, it adopts the constructive teaching philosophies by conventional face-to-face teaching with chances for personalized contacts with the material of the curriculum. (Mandernach, 2006, pp.41-50). Nevertheless, in order to meet the goals of education, the focus should be on proper online learning strategies rather than the technology itself.

The continuous development of teaching technologies requires teachers to learn new technologies. Innovative technologies and related networks, for example: wikis, YouTube, blogs, Facebook, and Twitter, which are known as social networking websites, have been researched broadly in recent years. Buus (2012) revealed that making use of social networking websites for teaching meets well with the modern policies of education in many countries. Moreover, it is coherent with some learning theories, like constructivism, along with instructive benefits in numerous studying circumstances (Buus, 2012, pp.13-22). In order to make better use of network resources to promote English teaching, teachers must not only have professional knowledge, but also have the ability to operate computers proficiently and the ability to use network technology.

Yunus, Salehi, and Chenzi (2012) said that applying social networking websites in writing could develop critical thinking skills. Students might have fewer anxiety to write on social networking websites. social networking websites offer more opening for communication, preparation, and collecting more data. Students would promote critical thinking abilities effectively by taking part in social networking writing activities (Yunus, Salehi and Chenzi, 2012, p.42). As far as I am concerned,

multimodal English teaching based on network resources is convenient for various forms of exercises. In this process, the teaching is not isolated, but in the combination of reading and writing, and integrated with listening, speaking, reading and writing. In this process, language input and output are closely integrated, the language skills of listening, speaking, reading and writing will be developed comprehensively. In the present study, students could make use of the internet to search for related information needed for their critical discussion and writing, utilize the online writing system-Picai.com (http://www. pigai.org/) to get feedback from the teacher timely and repeatedly, which could improve the efficiency of instruction.

From the literature discussed above, I conclude: first, since each approach possesses its own advantages and disadvantages, the choice concerning about where to teach critical thinking should be according to the characteristics and objectives of a course. Second, even if there is significant disagreement about which skills should be taught to improve such thinking, it is obvious that critical thinking involves a variety of psychological practices and abilities such as analysis, inference, judgment, evaluation, justification and self-management. Third, there are a variety of approaches and activities that could be employed to develop students' critical thinking skills, it is crucial for the teacher to select the efficient teaching method according to the teaching content. Finally, the work of Yunus, Salehi and Chenzi (2012) has emphasised the importance of networking in writing instruction. the network environment could provide students with more resources and materials for English writing, allowing students to participate in the writing teaching process more flexibly. English teachers in universities should make greater use of the advantages of the network and provide students with a platform for mutual

communication and exchange in the process of English writing teaching, actively guide them to conduct cooperative learning, stimulate students' interest to promote the teaching efficiency and improve students' English comprehensive literacy. The next section of the review explores a further dimension of this issue by examining the correlation between critical thinking and English writing.

2.3 Studies on the Correlation between Critical Thinking and English Writing

Writing is an important skill in English not only for academic purposes but also for lifelong learning. Heaton (1989) claimed that writing not only needs the grasp of sentence structure, vocabulary and punctuation, but involves the conceptual judgment and requires critical thinking as well. Sturm and Koppenhaver (2000) informed that writing composing contains a multifaceted thinking which have to combine various components involving the subject and theme, selection of words, structure, intention, audience, precision, succession, consistency and text. Hence, writing is not a simple activity and learning writing is not effortless. Aldersen and Bachman (2002) describes writing as a regulated interaction approach and as a means of studying that shows students' logical thinking skill. Harmer (2004) brought forward that writing competence is still being applied as the most important method to evaluate students' learning in most tests. Assignment, situation, personal perception and emotional developments would affect the writing process entirely. According to Sharadgah (2014), students could improve their ability of critical thinking during the process of writing. Because in the process of writing, students are required to collect data, analyse information and evaluate arguments which would help to promote their critical thinking ability greatly. As Harmer (2009)

claimed, listening and reading are input skills, while speaking and writing are output skills. The ideas of the authors mentioned above proved that writing skill is a dynamic and constructive skill, writing skill is one of the essential abilities students have to grasp in university. Writing ability can better demonstrate an English learner's language proficiency. However, Chinese university education generally emphasizes the learning of knowledge and neglects the output of knowledge, it is difficult to implement more interactive speaking and writing training for non-English majors in class, which results in the imbalance in the development of input skills and output skills.

2.3.1 Studies on the Correlation between Critical Thinking and English Writing Abroad

In the research on the relationship between critical thinking and writing abilities, Afshar, Movassagh and Arbabi (2017) argued that there was a significant correlation between English learners' critical thinking and their writing ability. Analysis and evaluation played a strong promoting role in the teaching of critical writing. At the same time, Afshar et al. discussed the positive effects of critical thinking in critical writing teaching. Because the traditional tests of English courses in China could hardly reflect the current status of students' thinking ability, the reform of course tests should be followed up. The test content should stimulate students' passion for thinking and exploration, fostering students' thinking ability of discover-analyse-solve.

Based on this, Dowd et al. (2018) studied the relationship between scientific reasoning and critical thinking skills in writing. The experimental results showed that scientific reasoning writing is beneficial to enhance critical thinking, and critical thinking can improve students'

scientific reasoning in writing. Dowd et al. emphasized the critical thinking process in the writing process, which confirmed the important role of critical thinking in critical writing teaching (Dowd et al., 2018, pp.52-56). Teachers should guide students to question actively and reason scientifically, which is an important part of the writing. When facing the writing materials, students would have many unique insights. Many of these insights may be incomplete, vague, and one-sided. At this time, teacher could guide them to integrate and adjust their writing materials, and it is also a process of the students' critical thinking. Under the guidance of teachers, students would find their own writing goals, sort out their own writing logic, determine the arguments for composition writing and make their own compositions more critical, so as to improve the overall level of argument, which is inconsistent with the results of the present study (see section 4.3, chapter 4).

In order to identify the challenges encountered by university students related to critical thinking and writing, exploring whether prepared training could promote students' awareness and the skills of critical writing, Ahmed (2018) organized an action study and selected participants from Black and Minority Ethnic backgrounds at a university in London. From the study conclusion we can see that even though students were familiar with the concept of critical thinking and conscious of the significance of critical writing, there was an explicit requirement for instruction on the explanation and application of the skills in practice in order to meet the need of their academic requirements (Ahmed, 2018, pp. 74-84). The students in the research are from Black and Minority Ethnic backgrounds, which inspire me want to know what is the challenges faced by Chinese university students in related to critical thinking and English writing, explore the teaching strategy to develop students' critical writing

skills.

According to Rahmat (2019), some students cannot organize their ideas in proper language because there are many challenges students have to face, such as: linguistic problem including vocabulary, grammar and language usage; communication obstacle caused by lacking interaction with readers; cognitive trouble involving punctuation, paragraphing and capitalization. To Chinese students, English is their second language, there are more challenges for students to overcome language barriers and express their idea after critical thinking.

Actually, thinking and writing are interconnected with each other. Rahmat (2020) investigated the correlation between thinking and writing, the result revealed the cycle between them that is: decent writing requires appropriate planning and writing design involves synthesising for information. Critical thinking skills are required in the process of reading for making judgments on the content of the passage, such as whether the content is useful and how to make the best use of the content to meet the needs of writers. As a critical writer, evaluating the draft critically is necessary for improvement (Rahmat, 2020, pp.20-37). College English teachers should think about how to combine the teaching of college English writing with critical thinking education to cultivate students' critical thinking habit and promote the quality of students comprehensively. The following section of the review analyses the research Chinese scholars took to study the inter-relationships between critical thinking and English writing.

2.3.2 Studies on the Correlation between Critical Thinking and English Writing in China

Compared with Western countries, the research on the cultivation of

critical thinking started late in China. Before the 21st century, there was no literature on modern critical thinking in Chinese educational journals (Wu Hongzhi, 2004, pp.10-16). Since 2000, Chinese scholars have begun to pay attention to critical thinking education, mainly introducing the research results of Western countries, but systematic studies have not been carried out yet (Liu Donghong, 2005, pp.46-51). In recent years, with the deepening of critical thinking research, Chinese scholars have increasingly realized the importance of cultivating students' critical thinking, and Chinese education circles have also begun to explore the introduction of critical thinking skills into the classroom. The combination of English writing and critical thinking training is sought after by many scholars. Chinese research on the combination of English writing and critical thinking training mainly includes macro-theoretical discussions, the concrete teaching methods or training models, and empirical research on the internal relations between them.

The relevant research in China focused on the critical thinking ability of English majors at the beginning. Among them, Wen Qiufang and Liu Runqing (2006) took English majors as the research object and required students to complete an argumentative essay writing within a specified time. Through analysis of students' writing content, they studied their critical thinking ability. The results showed that the critical thinking ability of college students was weak in the process of argumentative essay writing (Wen Qiufang and Liu Runqing, 2006, pp.49-59). Han Shaojie and Yi Yan (2009) found that the teaching of English majors in China generally emphasizes language skills training and neglects thinking ability training. They proposed to combine the teaching of English writing with the cultivation of critical thinking (Han Shaojie and Yi Yan, 2009, pp.24-28). Their research has revealed the situation of critical thinking in the

English writing in China. As a result, Chinese scholars were aware of the weak critical thinking of Chinese English majors and the importance of cultivating students' critical thinking through English writing teaching. However, the objects of this kind of research are relatively single, only for English majors undergraduates, and there are very few related studies investigating the critical thinking ability of non-English majors. In addition, the English writing style selected in the above study is mainly argumentative, and the study of other English writing genres is obviously insufficient. As a teacher for college English, I am eager to further understand the current situation of non-English majors' English writing and critical thinking level, explore effective teaching strategies for critical English writing.

In recent years, Chinese scholars have begun to study how to cultivate students' critical thinking through English writing teaching. Among them, Zhou Yanjie (2013) proposed that writing evaluation standards (IELTS writing evaluation standards) can reflect the critical thinking ability of induction, comparison, analysis, evaluation, etc. and they should be used in college English writing teaching. She suggested that works folders containing critical writing tasks should be used to replace the traditional summative writing assessment method in order to enhance the level of college students' language ability and critical thinking skills (Zhou Yanjie, 2013, pp.143-144). At the same time, Huang Fang and Tao Yu (2013) discussed how to integrate Socratic's philosophy into college English writing teaching, that is, through Socratic question and answer, critical discussion and critical writing to cultivate college students' critical thinking (Huang Fang and Tao Yu, 2013, pp.156-160). Wang Yong (2014) proposed to apply the thinking element of critical thinking authority Richard Paul's theory to English writing teaching, that is, students

integrate information, hypotheses, inferences and other thinking elements into the writing process and raise deep-level questions, think actively to produce effective, logical and meaningful passages (Wang Yong, 2014, pp.16-17). So far, Chinese scholars have begun to explore how to introduce the critical thinking theories of Western countries into English teaching in China, emphasizing the importance of logical thinking in English writing, and cultivating students' critical thinking skills through heuristic questions such as Socratic questioning.

A range of researchers proposed to combine the theory of CBI (Content-based Instruction) into teaching practice. Among them, Yu Jiying (2014) based on the current split between the teaching of English language knowledge and the cultivation of critical thinking in China, used the critical thinking theory and CBI (Content-based Instruction) teaching theory to construct an integrated teaching model of writing, which provided a reference for college English writing teaching (Yu Jiying, 2014, pp.20-28). Fu Zhuqin (2017) proposed to integrate CBI (Content-based Instruction), which is based on the content of the subject, into the teaching of college English writing, and adjust the corresponding teaching methods and evaluation feedback methods. Training students the abilities of analysis, inference and evaluation can effectively combine with the improvement of students' writing skills and the training of students' critical thinking(Fu Zhuqin, 2017, pp.3-4). Such research provides corresponding writing teaching tools, methods and theories for cultivating students' critical thinking, playing a guiding and reference role for related research. However, some teaching tools, methods and theories have not been empirically studied to verify their feasibility and effectiveness.

In addition, many scholars have conducted empirical research on the application of critical thinking in the process of English writing, the

interaction between English writing and critical thinking, and the teaching model of English writing based on critical thinking. Wang Caiying and Li Rongbao (2015) took 60 junior students from a university in Fujian as the research object, using action research as the method to explore the feasibility of cultivating students' critical thinking skills in advanced writing. After the pre-test and post-test of the same topic composition, it is found that students' critical thinking skills have been developed(Wang Caiying and Li Rongbao, 2015, pp.115-117). However, the research results were obtained through surveys and interviews, and no experimental data were studied. Therefore, the reliability of the research results remained to be verified.

Through the above related studies, it can be found that the research on the combination of critical thinking training and English writing teaching has entered an era of vigorous development since 2010s'. Scholars' research focused mainly on the current situation of students' critical thinking in English writing, English writing teaching methods and theories for cultivating students' critical thinking, interaction between critical thinking and English writing, etc. Empirical research could more scientifically verify the feasibility and effectiveness of cultivating students' critical thinking through English writing teaching. Therefore, empirical research into the efficacy of critical thinking has been examined by more and more scholars and has become a focus for research. The above-mentioned relevant empirical research is reasonable and persuasive to a certain extent, and the research objects are more abundant. However, there are few relevant studies focusing on non-English majors. In addition, the measurement of critical thinking in some studies is not detailed enough to generalize, some conclusion were partial generalizations, and English writing teaching activities cannot effectively reflect the training of critical

thinking. However, most research mentioned above is only a theoretical discussion, the effect of its application in teaching practice has not been verified, and its reliability remains to be verified.

2.4 Research on Teaching Critical Writing

Critical writing teaching takes critical thinking as the core elements, focusing on developing students' thinking quality and improving students' English writing skills. It has received widespread attention and has gradually become one of the main focus of English writing teaching research, such as the studies by Paul and Elder (2002), Brooke and Parker (2009) and Yu Jiying (2014). In recent years, critical writing teaching has attracted great awareness from scholars and has developed gradually. The related studies mainly focus on two aspects: influencing factors of critical writing teaching and critical writing teaching strategies. This section of the chapter has mainly reviewed the correlation between critical thinking and education, discussed the definition of critical writing teaching, summarized relevant research on the influencing factors and teaching strategies related to critical writing teaching.

2.4.1 The Origins and Definition of Critical Writing Teaching

Language is the tool for people to realize the word and express their ideas, so the close relationship between language and thinking has drawn attention of many scholars and researchers for a lang time. As Atkinson (1997) argued that critical writing in English is especially demanding for studying English as a foreign language, because critical writing requires both higher-level skills in thinking and language competence.

At the beginning of the 21st century, Paul and Elder (2002) made a clear definition of critical writing teaching for the first time, according to their definition, critical writing teaching is to express oneself in written

language and requires the ability to organize language according to various concepts and their interrelations. When accuracy is in conflict with truth, we must know what our thesis is, how to support it, how to clarify it in detail so that others can understand it, what other viewpoints will challenge our viewpoints, and what the limitations of our viewpoints are, etc (Paul and Elder, 2002, p.376). Paul and Elder's definition of critical writing teaching essentially integrated critical concepts, opinions, assumptions, inferences, information and other elements with rational standards such as accuracy, precision, and logicality. They clarified the requirements of critical writing teaching and provided a reference for scholars to study critical writing.

Critical writing teaching in China originated from critical writing techniques. Professor Huang Yuanshen (1998) pointed out that teachers and students in the foreign language department often lack the ability of analysis, synthesis, judgment, and reasoning when writing articles, that is, "critical absence", and emphasized that the absence of critical ability directly affects people's creativity, problem-solving ability and comprehensive quality (Huang Yuanshen, 1998, pp.1-19). That was the first time the concept of critical writing teaching appeared in Chinese academic circle, but it did not attract the attention of many scholars. In 2010, Professor Huang Yuanshen (2010) talked about "critical absence" again, emphasizing that the curriculum of English major must be reformed thoroughly, and put forward several suggestions to solve the problem of "critical absence" (Huang Yuanshen, 2010, pp.11-16). Critical writing gradually attracted more attention from teachers and scholars in China.

Critical writing teaching is a writing teaching method that uses critical thinking skills, methods or elements to write. According to the critical

writing teaching method, language knowledge and skills are no longer the primary factors whether before the design of teaching activities or after writing. Instead, learners should try their best to express viewpoints clearly, analyses thoroughly, organize structure rigorously and discourse coherently in English writing. Critical writing teaching at college helps to make up for the shortcomings of exam-oriented education, cultivate students' critical thinking, develop their literacy, and improve their overall quality, which meet the requirements of college English reform in China.

2.4.2 Research on the Influencing Factors of Critical Writing Teaching

In the development of critical writing teaching, the factors that influence critical writing teaching are the main contents studied by scholars around the world. In the early 1990s, critical writing teaching was in its preliminary stage. Many scholars believed that critical thinking was the primary factor affecting critical writing teaching and discussed how to improve learners' writing skills through critical thinking. At the same time, some scholars have also studied how to promote critical thinking in writing. For example, Hobson and Schafermeyer (1994) discussed the use of different types of classroom writing activities and assessment methods to improve students' critical thinking. The teaching framework for critical writing has gradually formed. Even though many professors have the same opinion that critical thinking is an essential skill, not all agree on the most effective method for training it. According to Moore (2014), disagreement amongst educators focus on whether critical thinking is a kind of basic skill which could be transferred across fields or whether it is specific in one area and should be taught as an independent subject clearly. It is necessary for the majority of scholars to find new breakthroughs and practical entry points.

In recent years, the teaching of critical writing has received more and more attention, and its influence factors have once again become the focus of academic studies. Ahanggari (2014) aimed to explore the impact of intertextuality as a springboard on the critical writing of Iranian English learners. His research results showed that reading and movies as intertextual elements have a positive impact on the critical thinking of Iranian English learners, and this positive impact can be reflected in writing. He believed that being able to think critically and apply intertextual elements to writing can provide learners with a better writing. Ahanggari emphasized the fracture and uncertainty of the text itself, and paid attention to the influence of existing educational setting for EFL learners (Ahanggari, 2014, pp.85-98). It has certain enlightening significance for scholars to study the influencing factors of critical writing teaching and is helpful for scholars to further explore the positive factors affecting critical writing teaching. Based on this, scholars have set off an upsurge in studying the positive factors that influence teaching critical writing.

With more and more attention paid to the research on the positive factors affecting the teaching of critical writing, research on the negative factors affecting critical writing teaching has also emerged. Mechanical writing is considered to be the primary factor hindering critical writing. Alidmat and Ayassrah (2017) identified and described the writing tasks in the English for Special Purposes program and found that the writing tasks had a low level of correspondence with critical thinking skills, that is, the writing tasks in the courses were more mechanical writing than critical thinking training. He emphasized that students should pay more attention to critical skills such as evaluation, reasoning, and comparison in their writing tasks (Alidmat and Ayassrah, 2017, pp.82-90). The research of

Alidmat and Ayassrah is helpful for teachers and students to improve their awareness of critical writing and reduce the teaching mechanical writing.

There are few studies on the influencing factors of critical writing teaching in China. Zhou Ling and Song Qingwen (2016) researched the factors which affect critical writing teaching including internal factors and external factors. The internal factors mainly include learning motivation, learning methods and emotional factors, while the external factors are mainly reflected as the social environment and teaching condition etc. Specifically, impure learning motivation (exam-oriented), improper learning methods (rote memorization), low interest in learning, weak willpower, lack of a language environment for communicating in English and a teaching condition that focuses on writing results would lead to a lack of thinking, incomplete analysis, unclear expression and irrational structure in the writing process (Zhou Ling and Song Qingwen, 2016, pp.126-126). Zhou Ling and Song Qingwen summarized the influencing factors of critical writing teaching comprehensively, which is helpful for English teachers to improve the efficiency of writing teaching from internal and external factors and promote the common development of learners' writing skill and critical thinking ability.

From the literature, we can find that: (1) the factors influencing the critical writing teaching are various, including intertextuality, scientific reasoning, teaching methods, the use of critical thinking skills, learning motivation, learning methods, emotional factors, social environment and teaching condition, etc., and critical thinking is always the most important factors affecting critical writing teaching; (2) Many achievements have been made in the research on the influencing factors of critical writing teaching, but there are still some shortcomings. For example, no further systematic

solutions and corresponding empirical studies have been made on the basis of the influencing factors. At the same time, the research on the influencing factors of critical writing teaching provides ideas for the follow-up discussion of critical writing teaching strategies.

2.4.3 Research on Critical Writing Teaching Strategy and Implementations for research in China

After reviewing the research on the factors affecting the teaching of critical writing, it is necessary to summarize the relevant research on the teaching strategies for critical writing.

At the beginning of the 21st century, critical writing teaching strategies have become a hot research topic in Western countries. Paul and Elder (2002) pointed out that critical writing teaching requires the ability to organize language according to various concepts and their interrelationships, identify problems, and through the data, facts, observations, experience and other information to make assumptions and reasoning to support one's own views. Standards must be met in the process of critical writing teaching, namely, clarity, accuracy, precision, significance, relevance, adequacy, logicalness, breadth and depth (Paul and Elder, 2002, p.98). Paul and Elder integrated critical thinking elements and rational standards into the teaching of critical writing, setting a benchmark for scholars around the world to study critical writing teaching strategies. However, Paul and Elder only generalized the critical writing teaching strategy from a macro level, did not summarize the specific teaching steps.

Some experts paid more attention to the specific steps of critical writing teaching. Brooke and Parker (2009) proposed that the teaching of critical writing consists of five steps: (1) Summarize what is written after the first

draft, then determine whether the outline is logical, and ensure that every sentence in the article conforms to the outline; (2) Modification is the secret of good writing. They argued that even great writers revise what they write, and they keep revising it. Unless you are more talented than the best professional writers, revise and modify as many times as possible; (3) Ask others to read your article and then make criticisms, you should revise as needed (4) If you encounter problems with grammar or punctuation, reading the article aloud may help to discover omissions and problems; (5) After the article is completely satisfied, put it aside and come back to it after a while for another set of modifications (Brooke and Parker, 2009, p.89). In general, Brooke and Parker combined critical thinking with writing under the framework of writing, listing the steps and methods of critical writing, and providing references for scholars around the world to study critical writing teaching strategies. However, Brooke and Parker paid too much attention to the revision of articles and ignore other aspects of critical writing teaching, which is not conducive to the comprehensive development of the learners' critical writing ability.

Critical writing teaching strategies have also attracted the attention of Chinese scholars. Wen Qiufang and Liu Runqing (2006) pointed out that foreign language teaching in China lacks strong abilities of analysis, synthesis, judgment, reasoning, thinking and discriminative, showing worrying for lacking critical thinking. They believed that in the teaching of critical writing, it was necessary to emphasize the topic, clarify the questions, keep coherence and justify thoroughly. To be more specific, on this basis of understanding and judging the relationship between concepts during the analysing of topics, establish the central argument and sub-argument of the article, and finally discussed in sections according to the overall layout writing (Wen Qiufang and Liu Runqing, 2006, pp.49-58).

Wen Qiufang elaborated on critical writing teaching strategies from four aspects: topic analysis, conception, layout and discussion, providing theoretical and practical references for Chinese scholars to study the teaching strategy of critical writing.

At the same time, Gu Zhenyi (2006) pointed out that critical writing teaching strategies include: (1) introducing themes and issues; (2) providing evidence to support the argument; (3) providing guarantee to show how the evidence supports the conclusion; (4) provide facts and reasons supporting the guarantee: explain the rationality of the guarantee according to practice and theory; (5) answer refutations and counterexamples; (6) draw conclusions: summarize the main points of the argument, point out the significance of the argument, and make readers deeply impressed. Gu Zhenyi' s views coincide with Paul and Elder who started from analysis of the issues, emphasizing the argumentation process and draw conclusions, but Gu's is more specific.

In December of 2010, the Foreign Language Teaching and Research Press and the School of English of Beijing Foreign Studies University jointly organized the "High-End Forum on Writing Teaching and Thinking Ability Cultivation for English Majors" at Beijing Foreign Studies University. More than 50 scholars participated in this forum. Scholars asked colleges and universities to further explore the methods of writing teaching and critical thinking ability cultivation (Sun Youzhong, 2011, pp.603-608). Critical writing teaching is valued by foreign language circles gradually, the research on critical writing teaching strategies has developed rapidly in China.

The research on critical writing teaching strategies has initially formed a systematic framework in China. Yu Jiying (2014) constructed the

“integrated” teaching model of critical writing based on the critical thinking model theory and content-dependent teaching theory, aiming at solving the separation between language skills and critical writing ability, the “integrated” model including: integrated teaching objectives, integrated teaching content and integrated teaching methods. She pointed out that the teaching of critical writing can be divided into three stages: (1) pre-writing stage: using mind mapping, brainstorming, Socratic questioning, etc. to develop ideas; (2) in-writing stage: providing diversified writing tasks and activities to stimulate students’ interest in writing, such as group collaborative writing, perspective-changing writing, time-limited summary writing, etc.; (3) post-writing stage: revising the composition by using the critical evaluation criteria, such as: clarity, relevance, logic, depth, fairness, etc. (Yu Jiying, 2014, pp. 20-28). The teaching activities of each stage provide a feasible plan for the reform of English writing curriculum of basic education in China which are conducive to enhancing the awareness of critical writing among teachers and students.

Wang Xu (2015) conducted a study to integrate the critical thinking cultivation into English writing classes in a university located in the north of China. The results indicated that the critical thinking level of non-English major college students was below the average and ability of critical thinking was positively associated with the writing proficiency. (Wang Xu, 2015, pp.59), which is helpful for researchers to further explore the teaching strategies of critical writing and cultivate learners’ critical writing ability.

Zhou Jianwu (2016) pointed out that critical writing teaching usually includes the following steps: (1) select the topic accurately and analysis

the topic; (2) propose a clear point of view; (3) use sufficient theoretical or factual evidence to rigorously demonstrate the point; (4) arrange the structure of the article reasonably and express the language fluently. When teaching critical writing, pay attention to proper analysis, reasoning, rigorous structure, and appropriate language. Zhou Jianwu explored the steps and methods of critical writing teaching from the practical perspective under the framework of demonstrating validity, providing guidance for learners to improve their critical writing skills.

Some scholars constructed English writing teaching model to guide the cultivation of students' critical thinking. Qi Jiaming and Zhu Sha (2018) explored a new teaching model of college English writing, which combined critical thinking into three stages: pre-writing reading, multi-task writing, and post-writing evaluation feedback, training students' ability of analysis, reasoning and evaluation, in order to improve the overall level of English writing. They selected 69 students from different majors of the same grade in a university in Nanjing as the research objects. The Chinese version of the Critical Thinking Scale developed by Watson & Glaser was used to measure students' critical thinking ability. The aim of the research was to explore the correlation between the level of critical thinking skills and the level of English argumentative writing (Qi Jiaming and Zhu Sha, 2018, pp.48-50). The research results showed that there was a significant positive correlation between students' overall critical thinking ability and their English argumentative writing level. These teaching models had promoted the development of English writing teaching to a certain extent and have important guiding role and practical significance for front-line educators to cultivate students' critical thinking through English writing teaching.

Lu Dan et al. (2018) constructed a new mixed learning mode of English

writing in college English writing teaching based on critical thinking, which is to combine online learning with traditional learning, and through the experimental research showed that compared with the conventional teaching mode, this mode can promote the students' critical thinking ability more significantly, it has a positive effect on the development of students' English writing level (Lu Dan et al., 2018, pp.135-140). The new teaching model puts forward higher requirements for college English teachers. It not only requires teachers to update their teaching concepts and improve their own thinking skills, in order to better integrate the cultivation of critical thinking into all stages of English writing but needs to master the latest multimedia education technology as well so as to create a better language environment for English learning.

Most studies have explored the critical writing teaching strategies from the perspective of learners. In recent years, some researchers began to explore critical writing teaching strategies from the perspective of teachers. For instance: Lei Yanyan (2019) put forward some suggestions from the aspects of curriculum design, teaching methods, teaching evaluation, course testing and teachers' own development. Chen Yu (2020) discussed the strategy of critical writing teaching for junior English majors from teaching thought, teaching method, evaluation and the rational use of big data platform. Their research results provided guidance for English teachers to conduct critical writing teaching by making use of internet resources.

It is found that the research on critical writing teaching strategies has moved from the macro to the micro, from the abstract to the concrete. The studies were made full use of critical thinking skills and elements in critical writing teaching and complied with the requirements of education.

The results are beneficial to enhance learners' critical writing ability and improve their English literacy, providing theoretical and practical references for the teaching of critical writing in English.

Based on the above research results on critical writing teaching around the world, it is found that: (1) research on critical writing teaching in Western countries started early, reached a much wider horizon and richer results by diversified methods; (2) the research of critical writing teaching in China started late, but it has developed rapidly. Chinese research focus on critical writing teaching problems, teaching models, teaching methods and evaluation; (3) research on critical writing teaching adapted to the requirements of education and responding to the needs of the curriculum reform of English majors, the main research objects are English majors, and only a few of them are non-English majors, therefore, the teaching of English critical writing for non-English majors has aroused my attention and exploration; (4) China's research on critical writing teaching is still in the exploratory stage, the research level is relatively shallow. Most of the studies are about the combination of critical thinking and English writing, it is necessary to put these theories into teaching practice and check the validity and effectiveness. The next section will focus on the standards and new scoring model for English writing evaluation.

2.5 Analysis of the Current Situation of English Writing Evaluation

The following discussion of writing evaluation particularly focuses on existing writing scoring standards and new scoring model for English writing. A scientific English writing evaluation could help to discover the deficiencies of students' writing ability, and a timely teaching strategies adjustment would improve students' writing ability.

2.5.1 Research on English Writing Scoring Standards

According to Bacha (2001), suitable grading scale and purpose-oriented criteria are the two crucial issues for writing assessment. Whatever the purpose of writing, it is important for the choice of scale. Holistic and analytic evaluation are the most widespread approaches for writing evaluation. Students' language levels could be informed by both holistic and analytic scoring validly and reliably. The holistic evaluation means reading a passage rapidly so as to get a comprehensive idea of the author's aptitude. On the contrary, the analytic marking requires a detailed analysis and is generally used to detect flaws in the writings. The holistic evaluation is often applied to advise judgments and gauge students' accomplishment. In contrast, the analytical evaluation pays more attention to particular element, such as the rules of grammars or the word spelling in the writings (Bacha, 2001, pp.371-383). Therefore, a holistic scoring rubric would guide teachers to critique students' writing according to the overall performance on the base of holistic criteria. In contrast, the analytic rubrics would suggest separate grades to every criterion.

The holistic scoring rubric usually focus on some specific aspects of writing. Cohen and Manion(1994) claimed that the holistic scoring concentrates on the good aspects of a writing and how well the writer has done, instead of on the weakness of the writer in specific areas which is more significant for conclusions regarding improvement. Bacha (2001) argued that the holistic scoring is efficient for evaluating classroom papers and large-scale scoring. It could classify the proficiency level of students' writing, but for promotional purposes, analytic scales-based evaluation criteria would offer specific feedback for students' progress. Holistic scoring could combine some traits together which might be measured individually in analytic scoring, getting it comparatively simpler and

reliable (Bacha, 2001, pp.371-383). For the studying situation, holistic scoring is not as informative as analytic scoring.

The following research focused on English writing scoring in China, such as Cai Jigang (2002) had studied the influencing factors of CET4 and CET6 in China. He pointed out that the principle of proposition, grading standards, and examination syllabus have significant impacts on Chinese students' writing, especially the scoring criteria. The objectivity and validity of the scoring criteria have a crucial influence on students' writing performance and writing ability (Cai Jigang, 2002, pp.49-53). Test standards are to guide students in writing or to examine students' English writing ability. The purpose is to guide students' English thinking style and learn to use reasoning structures to write.

In addition to the study of CET in China, Zhan Huifang and Zhang Chunqing (2013) then compared and analysed the validity of scoring methods of writing part in the final English exam for college students. They concluded that the validity of the itemized scoring method was higher than that of the overall scoring method, and the scoring process was more detailed and reliable (Zhan and Zhang, 2013, pp,134-137); Li Qinghua (2014) compared the overall scoring standard with the itemized scoring standard in the TEM4 test. The conclusion showed that the itemized scoring standard is more suitable for the grading process of the TEM4 exam. In addition, the itemized scoring standard can improve the scoring validity of TEM4 to a certain extent.

In setting up a critical writing task, test constructs should be considered at the very beginning. It is necessary to clarify the specific content of the tested critical writing ability and describe the content in an appropriate way. The corresponding test tasks should be set up to make the originally

abstract concepts concrete and operable. At the same time, irrelevant and unrepresentative content should be avoided as far as possible to ensure the validity of the test.

2.5.2 Research on New Scoring Models for English Writing

The change of assessment system promoted the reform of college English writing. Stapleton (2001) proposed a critical writing rating model which focus on critical elements' assessment. Teachers could take the model as a guide to recognize and count up the crucial critical thinking elements presented in students' writing. Students' writing could be assessed on the basis of (a) the arguments number; (b) the evidence extension; (c) the divergent arguments' recognition; (d) resultant refutations; and (e) the fallacies' number (Stapleton, 2001, pp.506-548). Stapleton's writing rating model focused on critical thinking ability and listed the factors in the standards of critical writing assessment.

Metacognitive are strategies for reflecting on their own learning activities. The success of a learner's learning depends to a large extent on the success or failure of the use of metacognitive strategies. Schunk (2004) argued that according to the theory of metacognition, students should be taught to manage special cognitive skills consciously such as self-evaluation and self-monitoring, which would help to improve their studying and achievement. Butler and Lee (2010) then discovered that self-assessment would help to shift the traditional teacher-centred classroom teaching into learner-centred mode. They claimed that self-assessment meets the three requirements of self-regulated studying: metacognitive skills, studying approach, and emotional domain. In Hongkong, Lam (2010) investigated the part of self-assessment in students' writing portfolio. When he employed self-assessment in the writing class at the end of the semester, the students were passionate. What is more, he found that the students felt

inspired to enhance their writing. Nevertheless, the students believed that self-assessment could only help them to deal with superficial mistakes such as the vocabulary usage and the writing mechanics.

Zhang Xiaohua (2007) conducted a detailed study on how to use writing scoring standards to exercise students' language ability in the long-term writing process, promotes students' ability and motivation of autonomous learning through mutual evaluation. It is found that peer mutual evaluation has practical value and guidance in English writing teaching to some extent. Peer evaluation has realized the transition from a "teacher-centred" result-oriented teaching method to a "student-centred" process teaching method. This transformation not only improves students' writing skills, but also enhances students' confidence in English learning, promoting students' social and cognitive skills at the same time. However, influenced by traditional Chinese culture such as self-humility and face-saving, some students are reluctant to give their classmates a low score and negative evaluations. It is necessary to carry out demonstration training and procedural assistance for students in advance according to the writing goals and content, establish clear writing evaluation standards, so as to better realize the role of peer evaluation and effectively improve students' writing ability.

There was a shift in English writing teaching from stress on writing product to emphasis on writing process at the end of last century. Evaluating students' writing processes has become many scholars' research focus since then. Abdel (2008) claimed that process assessment has a great pedagogical importance for revealing the problems in the course of writing and promoting students' awareness about applying strategies in their writing. Zhang Yanhong (2010) recommended the dynamic assessment in college English writing teaching, because

dynamic assessment can not only be a teaching assessment instrument but also a reflective teaching method itself.

Having reviewed a body of literature on English writing scoring standards and new scoring models, particularly the research of Chinese scholars, I conclude that both process evaluation and summative evaluation may enhance students' thinking ability. In the present study, a variety of evaluation methods were applied flexibly according to various requirements. The tests employed were oriented towards the reflection and application of the students' thinking ability and their writing skills.

From the literature, it is found that in the process of analysing and designing the scoring standard for English writing, scholars explored how to improve the teaching quality of writing courses and how to promote learners' writing ability, which provide a more complete and convenient development platform for English writing and plays a certain role in paving the way for future studies. From the perspective of combining English writing evaluation methods and scoring standards, some methods for improving learners' learning and educators' teaching quality were proposed, which will promote the development of the English writing assessment in the future.

Nevertheless, the existing studies need to be perfected and improved urgently for the following limitations: firstly, most of studies on English writing assessment, especially those at the beginning stage, paid much attention to theoretical studies and the amount of empirical studies is quite small; secondly, the current assessment system of college English writing in China is far from satisfaction and it calls for a reform to integrate the evaluation of critical thinking ability into the assessment system so as to improve students' creative ability in writing, which is

the ultimate goal of writing. An empirical study is a necessity to reform the evaluation of college English writing in order to cultivate more critical writing talents.

2.6 Theoretical Basis

There are many theories in the area of second language acquisition, this section of the chapter mainly introduces other major theories related to teaching critical writing, such as: Second Language Acquisition Theories, Constructivism Theory, Krashen's Input Hypothesis and Swain' Output Hypothesis. Exploring the relationship between the research of second language acquisition and pedagogy, so as to provide the theory basis for the study and guide the instruction of critical writing.

2.6.1 Second Language Acquisition (SLA) Theories

Brown (2002) regarded SLA as a subcategory of common human knowledge and set out the factors that ought to be involved in the SLA theory, such as: cognitive differences, which is directly associated with one's character style and interconnected with second language study; interference which means the new language structures creation; and the knowledge of dialogue and language communication. The cognitivist theories are important for Second language acquisition, such as McLaughlin (1983)'s Attention-Processing Model, which claims that second language learning includes shifting from controlled processing to automatic processing through training. Second language acquisition is regarded as a complicated cognitive competence and four sections are listed in this modal. The first one is 'focal automatic processes' like the student's test performance. The next one exemplifies 'focal controlled processes'' such as the learner's performance on the basis of formal education. The following section discusses to 'peripheral controlled

processes' such as learning with no instruction. The last section concentrates on 'peripheral automatic processes' and could be associated with a student's communication performance. Controlled processes are temporary, and capability restricted, while automatic processes are comparatively perpetual (Brown, 2002). The purpose of critical writing teaching is to cultivate students' automatic learning habits and self-learning ability through the instruction and training in class.

Lightbown and Spada (2006) put forward a general SLA theory that learners' language acquisition come along with a range of characteristics in contexts diversities (Lightbown and Spada, 2006, p.33). SLA study concentrates on the knowledge improvement and language usage by both children and grown-ups who previously understand no less than one other language (Spada and Lightbown, 2010, p.108). Linguistic theories assume language acquisition is on the basis of learners' intrinsic knowledge of rules which is rooted in the mind of people and universal to all languages. This category includes cognitive psychology, behaviourism, interactionism and connectionism. Theories of sociocultural put SLA in a bigger social environment which is a resource for intelligent development, believing a close connection between culture and mind.

2.6.2 Constructivism Theory

Constructivism is a very important theory for the means of learning in the study, which holds that knowledge is not developed automatically, people construct knowledge actively by making use of their own knowledge which is influenced by their experiences and the environment (Elliott et al., 2000, p.256). Cognitive constructivism asserts knowledge is constructed by people actively on the basis of their current cognitive formations. Consequently, education is related to their development of

cognition. Fox (2001) claimed that even though everyone has their particular experience of learning, they could share their communal knowledge. Even if teaching is a social procedure which is affected by cultural factors forcefully, cultures are composed by sub-cultures, even to the sub-cultures of individual. Cultures are continuously in a course of transformation and individuals' knowledge is not a strict copy of certain socially composed model. Everyone changes the culture during the process of education (Fox, 2001, p. 30). Each individual learner has a distinctive point of view, based on existing knowledge and values. This means that same lesson, teaching or activity may result in different learning by each student, as their subjective interpretations are different.

Piaget (1936)'s cognitive development theory concentrates on insight of children's knowledge acquirement and the intelligence nature, which indicates knowledge modifications in cognitive progression and capacities. From Piaget's point of view, cognitive development in early stage means processes on the basis of activities and mental improvements. According to Piaget (1936)'s theory, university students belong to the formal operational stage. During this stage, the teenagers would imagine abstractly and make explanation to the proposed hypothesis. Adolescents begin to considerate more issues about ethic, philosophy, society, and politics which involve abstract and theoretical interpretation. From that stage, they would make deductive logic to analysis from universal theories to particular information. They are able to look into various possible answers to questions and consider more logically about the problems. The capability of abstract concepts consideration is the crucial feature for cognitive development in the stage of the formal operation. The critical aptitude of taking scientifically strategy and making justification for hypotheses begin to develop in this period. Therefore, it is the best time to

cultivate students' critical thinking ability and writing skills in the university, which not only would promote the learning efficiency, but benefit for developing their ability to take long-term study.

Huang Yuanpeng (2013) expounded the Piaget school from four aspects: teaching goals, classroom focus, teacher's role, and student's role. He pointed out that Piaget school advocates the development of students' personal logical thinking ability and believes that experiments should be conducted naturally in the classroom independently and cooperatively. Piaget school emphasizes student-centeredness class mode in which teachers are the helpers and promoters for students' learning, and students are the active builders of knowledge. In order to develop the learner's thinking ability, learners should put forward their own views and accept the doubts of others in a group. Learners have to respond to others' questions and defend their own views. The interaction between teachers and learners should be emphasized in class. Teachers should explain, inform, inquire, and correct during the teaching process, and encourage learners to explain themselves. The role of teachers is to create and organize controversial learning tasks, ask exploratory questions, and encourage learners to re-examine their views. The role of learners is to put forward and demonstrate their own views and answer exploratory questions raised by teachers. Piaget school explained and further developed the theory of constructivism from the critical perspective(Huang, 2013, pp. 65-71). These views of Piaget provide an important theoretical basis for the cultivation of critical thinking ability. When using critical teaching methods in writing, students would be asked to complete various tasks in different stages. In order to complete tasks, students will discover problems actively and analyse and summarize the collected information. In this process, students could absorb external

knowledge constantly and integrate with their own original knowledge, thereby construct new knowledge. Moreover, students will conduct self-reflection on their original viewpoints, methods and concepts, and finally adjust their behaviour.

Constructivism theory has the following inspirations for the present study and teaching mode construction: (1) Critical writing teaching is based on critical thinking elements, emphasizing the logic of learners, which is similar to the Piaget school of constructivism in the development of logical thinking of learners. (2) Critical writing teaching emphasizes the development of students' critical thinking, thereby improving their critical writing skills. In the critical writing process, learners should put forward their own opinions, and when others question or refute their opinions, using facts, information such as experience to support their own views and draws conclusions, which are consistent with the Piaget school's intention in constructivism. (3) Critical writing teaching emphasizes problem-oriented teaching, which is in line with the explorative quality proposed by the constructivist. (4) The constructivist emphasizes that the role of students is to put forward and demonstrate their own views, which is consistent with the critical writing teaching focusing on the use of effective information to demonstrate their own views.

2.6.3 Krashen's Input Hypothesis

Krashen has a significant influence in the area of second language acquisition, his proposals have been regarded as a resource of concepts for study in second language acquisition for a long time. He made a great contribution for promoting an evolution of education methodology from former rule-concentrated methods such as grammar and translation approach to meaning-focused tactics, predominantly communicative

language teaching (CLT), which is the most popular method (Lightbown and Spada, 2006).

Krashen (1985)'s Input Hypothesis claims that language competence is developed by getting understandable input that is a little over person's existing level of ability (i+1) to some extent. He claimed specifically that his Input Hypothesis was the principal element for second language acquisition. He alleged that language input such as: reading and listening could create the key means of communication for a second language acquisition. He deemed that writing and speaking fluency in a second language would spontaneously come from adequate competency by input comprehension. Nevertheless, Krashen (1985) added that it is not mean that all types of input are proper and efficient, not all input would generate intake. The word "intake" is directly related to how affecting elements influence second language acquisition and how much input that is actually absorbed by students. He asserted that it was only "comprehensible input" could be helpful for learners. The input should be just a little higher than the students' existing degree of competency, Krashen (1985) signified with a formulation: i + 1. There is no accurate definition for the formulation i+1, which is consequently understood differently slightly. According to Krashen (1985), "i" signifies to the present degree of competence and "i+1" implies the next level alongside the normal order (Krashen, 1985, p.2). This level input is understandable for the reason that the context could provide help. Therefore, provided with comprehensible input, students would acquire the structures of language instinctively. Consequently, the communicate ability will be promoted under an understandable input. Furthermore, Krashen (1985) claimed that this kind of input would not bring any anxiety for students because they would not feel to be pushed to generate language, which could help them

acquire the language efficiently.

According to Krashen's Input Hypothesis, foreign language teaching should prepare plentiful comprehension input for students. Teachers should not push students to talk before they are prepared to communicate, and the teaching curricula should put emphasis on the point that grammar structure is very important in second language learning but understanding of the language is much more crucial. This sort of language acquisition theory could promote students' awareness to the importance of massive material for input, like reading and listening of the objective systems, in order to stimulate the development of target language.

In critical writing teaching, the teacher should pay more attention to the teaching materials and instruction method. According to Krashen's Input Hypothesis, the language input in the teaching should be kept on the level of "i +1" to stimulate students' interest in English writing and promote their confidence in critical writing, which would increase the teaching efficiency and learning effect. In the experimental teaching of the present study, teachers would ask some questions to introduce the main topics at the beginning of learning. These familiar daily questions could inspire students to think positively. Then guide the students to discuss and communicate with each other to broaden their minds. After learning the writing skills in each unit, the writing topics would be provided to students and the students would collect relevant information and vocabulary to fulfil the writing tasks by themselves. According to Krashen's Input Hypothesis, the teacher's guidance and the critical discussion are "i +1". This kind of input could stimulate students to think critically and help them to enrich the content of their writings.

2.6.4 Swain' Output Hypothesis

The famous Canadian linguist Swain (1985) put forward the Output Hypothesis theory based on the research results of French immersion teaching, which is a very important theory in second language acquisition and has exerted a positive and far-reaching influence on second language teaching. Beginning in the 1970s, Swain conducted French immersion teaching to some English-speaking students in Canada to study the development process of their second language ability. The results showed that the French listening and reading ability of the immersive class students was comparable to that of French native speakers, but their abilities in expression and writing are far lower than those of native French speakers. There is also a certain gap in vocabulary and syntax. Swain (1985) believed that the reason for that phenomenon is that students' learning of the second language only stayed at the stage of understanding and being understood. They could not have advanced language skills such as use the learned language knowledge accurately and give full play to language ability (Swain, 1985, pp. 235–253).

Swain (1993) claimed that the students would pay attention to feedback of the output language. According to the feedback, the learner will conduct analysis on the output language. The analysis produces two results: One is that learners find a solution to adjust and improve the output language, so as to output it again. The second is that the learner has no solution to modify and improve the output language. In this case, the learner would analyse the relevant language input to obtain language knowledge, improve their language ability and conduct language output again. This model embodies the internalization of new language structures and the enhancement of the internalized language knowledge. Swain (1993)

maintained that this kind of contemplation could facilitate language acquisition because the practice of noticing, and hypothesis testing would become much more obvious to students.

Swain (1995) believed that even if comprehensible language input is necessary for second language learners, language input alone is not enough if learners want to have a higher level of second language ability, only comprehensible language output would be helpful. Because language output can strengthen learners' understanding and consolidation of the language input. Compared with input, output allows learners to work harder to deal with the language at a deeper level. During the output process of speaking and writing, learners constantly make hypothesis about the knowledge they have learned. The practice of output such as speaking and writing verifies and revises their hypotheses continuously, promotes the mastery of language structure, and inspires learners to shift from semantic-based cognitive processing to syntax-based cognitive processing and achieve the purpose of knowledge internalization. In the end, the second language learners could master the language accurately and fluently.

In this study, students were required to finish a writing task after learning some writing skills in each unit. Peer-evaluation, self-check and modification were guided before teacher's assessment. According to the Output Hypothesis, students did output hypothesis and verified their hypotheses constantly by the course of writing and repeated modification, which were beneficial for students to master the language knowledge and writing skills.

2.6.5 A summary of the Debates

There are a lot of different theories in the field of second language acquisition, one of the most debated issues is trying to make clear how the second language ability is developed.

Hatch (1978) emphasized the significance of both input and output in his Discourse Theory in which he took the negotiation of meaning as the essence of his viewpoint. When native speakers adapt their language when communicating with second language learners, input turn out to be more comprehensible to the learner, which is similar to the major idea in Krashen's theory in which input is an important means for second language development. Nevertheless, Hatch (1978) also asserted that communication is an important means for developing the second language naturally. From this point of view, a great importance was attached to output because communication is an essential kind of language production.

Ellis (1985) put forward an optimal learning environment in which he presented some characteristics associated with both input and output as well. He discussed the significance of being immersed in a large number of input, which is close related to Krashen's Input Hypothesis. At the same time, he emphasized the importance of output as well through stressing the necessity for students to become aware of the value of second language communication. Moreover, He also highlighted the opportunities for unrestrained practice from which we could find out his idea not only supports Swain's output as a test for language hypothesis but Krashen's affective filter as well, because restrained condition could obviously inhibit a student's language performance. From this point of view, Krashen's and Swain's hypothesis have some similarity and co-exist together perfectly.

The sociolinguistic theories for SLA attach great importance to input and internalization of the second language. According to interactionism, students would adjust their input understanding of the second language and modify their internal language structure to match that specific input so as to develop second language abilities, which evidently corresponds to Krashen's concept that regards input as an important resources for the second language acquiring.

Interactionist theories view the language acquisition as the consequence of the interaction between the student's understanding development and the language environment. From this perspective we could likewise realize the combining of input and output. Interactionist theories suppose that interaction is the principal rationale for language acquisition which is consequently an obvious instance for both input and output hypotheses' validity.

According to the concepts of behaviourism, a language is developed by means of establishing a sequence of patterns which are attained through imitation. Consequently, input and output are both required in the theory, because before the imitation, which is a kind of output, something must have been absorbed that is a form of input. From the perspective of nativist theories, during the language learning process, students are continuously making hypotheses on the basis of the input information. Nevertheless, these hypotheses would be tested through input and output like communication as well.

Therefore, the theories of behaviourist which regard imitation as output justify Swain's opinion of the formation of automatic language conducts. The theory of nativist supports the Output Hypothesis as well because learners would test their knowledge and understanding by the means of dialogue. Similarly, the theories in both behaviourist and nativist support

Krashen's Input Hypothesis because both of them clearly point out that input would naturally lead to the consequence of output.

Consequently, from above viewpoints we could find out that the apparently contradictory theories are complementing with each other instead of rejecting each other. A certain number of comprehensible input is the necessary precondition for generating output, learners' acquisition is based on the ability to use the second language for comprehensible language output. As a language output activity, writing is very important and very effective for students to learn English. My research intends to take English writing activities as a means to cultivate students' critical thinking and make use of English writing activities to improve students' English language ability. According to the language acquisition theories, this research should follow the following two points when designing and carrying out English writing teaching activities: providing learners with sufficient and effective language input and giving effective feedback to learners' language output in a timely manner. In the process of second language acquisition, speaking and writing belong to the language output. Output not only promotes the improvement of output capacity, but also improves the efficiency of input understanding.

2.7 A Critique of Existing Literature

This chapter has reviewed some main research related to critical writing teaching, including: different definitions and related elements about critical thinking such as Dewey (1933), Facione (1990) and Paul and Elder (2002); studies on the correlation between critical thinking and English writing, such as Wen Qiufang and Liu Runqing (2006) and Ahmed (2018); research on the factors and strategies of critical writing teaching and analysis about the current situation of English writing evaluation, such as Stapleton (2001) and Yu Jiying (2014). From the literature, it can be found

that scholars generally believe that critical cultivation has an effect on the improvement of thinking quality. At the same time, most scholars believe that the cultivation of critical thinking quality must be integrated into specific subject teaching. Even though there are a lot of achievements in the study of critical thinking, the research on the integration of students' critical thinking and their English writing quality still has some rooms for improvement, such as:

(1) There are too many theoretical studies and too few empirical studies.

Although the research on critical thinking has been developing rapidly in recent years, most of them are theoretical exploration and construction, empirical research is not sufficient. There is an urgent need for improvement on critical training methods, textbook compilation and curriculum setting in China. By contrast, the western countries have systematic critical thinking research, from the early definition, connotation discussion of the critical thinking dimension, the influence factors of critical thinking, to ways of training and its relationship with various disciplines and so on. Chinese scholars have to learn from western system to develop more localized projects that are suitable for China's national conditions.

(2) There are many types of courses involved, but too few types of research objects.

At present, there are related research on English reading, writing, speaking, speech, debate, translation and other related courses, but most of the research objects were limited to English majors, and very few studies were for non-English major students. This phenomenon must attract the attention of researchers because college English courses for non-English

majors occupy the most time and the longest duration in the entire college curriculum in most colleges and universities in China. Even if the students are not major in English, as college English teachers, we should consciously cultivate students' critical thinking in the process of English teaching. Because the ability cultivation requires the joint efforts of all disciplines, and the thinking formation is the result of the joint action of multiple disciplines. Therefore, the research object of this paper is determined as non-English major college students.

(3) There are more studies on teaching models and fewer practical operations.

Most critical thinking strategy research focus on the conception of teaching mode, and there are few specific practical operations. Many literatures have mentioned that English teaching should attach importance to critical thinking training, but few successful cases and statistical data have been provided for reference as to how to operate. At the same time, only a limited group of subjects with relatively small sample size were involve in the few empirical studies in this field. Therefore, the effect of these studies remains to be confirmed by a large number of empirical studies. An important reason for this situation is that critical thinking ability is a concept difficult to measure, and how to measure it mainly depends on the research method. To ensure the scientific nature of empirical research, critical thinking and related concepts need to be clarified to form a theoretical framework. The research on critical thinking measurement and evaluation tools in China is in its infancy. The conditions for large-scale empirical research are not yet available in a short period of time. However, if teachers focus on cultivating students' critical thinking in daily teaching, they can try to combine multiple

evaluation methods. This paper will conduct research and exploration on this aspect.

(4) Cultural factors and teachers' own critical thinking ability are neglected.

Chinese English learners are in a non-native language learning environment and the implementation of critical writing teaching in this environment will be affected by cultural differences. However, the current research on the cultivation of critical thinking in China lack the exploration of cultural factors. The memory-based teaching mode, which is mainly taught by teachers, leads to the situation that students think little and ask few questions. It is easy to form a fixed thinking pattern, which is not conducive to the development of students' critical thinking ability. The overly rigorous cultural atmosphere, blind conformity and advocacy of authority make teachers and students often focus on standardization and unity in content understanding and question answering, reject diversity. With the development trend of internationalization, future research in this field will certainly incorporate cultural factors into study. In addition, when reviewing a large amount of literature, it is found that there are more studies on students' critical thinking, but less research on teachers' critical thinking. In the process of studying students' critical thinking, the quality and level of teachers should also be an important factor.

In summary, critical teaching research has begun to attract more and more attention of foreign language academic researchers, because of its important role in developing learners' rational thinking and innovative ability. Future research should focus on reflecting the elements of critical thinking teaching in concrete courses, realizing the effective combination of critical thinking training and English writing teaching, and exploring reasonable teaching models according to the characteristics of the courses.

After all, critical thinking is rooted in traditions of Western culture, and it is not easy to be transplanted into the Chinese teaching environment (see section 5.2 and section 5.3 in chapter 5). Simple training in a short period is not effective. Long-term and systematic training is needed to cultivate critical learners. Exploring critical writing teaching suitable for Chinese education to improve college students' English critical writing ability is, therefore, the focus of this research. In the following chapter, I outline how this research was designed and justify the methodology used.

Chapter 3 Experimental Design and Process

3.1 Introduction

From the literature review, it is found that the theoretical research on critical thinking ability is relatively mature, but there are few empirical studies based on the real classroom situation. There are more and more studies on critical thinking ability, and the objects of research mostly involve English majors, such as: Facione (1990) and Paul and Elder (2002), Stapleton (2001), Wen Qiufang and Liu Runqing (2006) and Yu Jiying (2014). But there are few non-English majors, especially the research on non-English majors in local colleges and universities. In view of the above facts, this study intends to go deep into college English classes to analyse and study the real corpus in class. English writing is a kind of high intensity thinking activity, which requires the use of critical thinking ability in the process from conception, writing to evaluation and revision. Therefore, English writing course is recognized as the best combination of critical thinking ability and specific courses. This study took two parallel classes of non-English majors in the freshman year of the local university as the research objects. Qualitative and quantitative research methods were employed to conduct a more comprehensive and in-depth research on college students' writing and critical ability, aiming to incorporate the teaching of critical ability into college English writing curriculum and try to construct a teaching mode for critical teaching writing, providing some guides for the reform of college English writing course.

3.2 Research Questions

In recent years, the reform of English teaching has become a contentious issue in China. The critical thinking ability of college students reflected in the writing process has become the focus of many educators, the cultivation of students' critical thinking ability and promoting their language writing skills have become the main purposes of teaching writing skills. This study intends to discover the status of college English writing teaching in China, taking the college English class as an example to collect and analyse the current situation of non-English major students' English writing and their writing difficulties, convey the basic connotation and evaluation criteria of critical writing to students through critical writing course. Based on consolidating of basic English writing skills, this study explores the possibility and feasibility of cultivating students' thinking ability in college English writing classes. Specifically, the following questions were explored in the study:

RQ1: What is the current status of non-English majors' English writing?

This question aimed at collecting the current situation of non-English majors' English writing and their writing difficulties, especially their critical ability in writing; analysing the existing problems of college English writing teaching in China.

RQ2: What is the current status of non-English majors' critical thinking ability?

This question was to explore non-English majors' awareness and understanding of critical thinking ability in general. Whether they could give full play to their own subjective initiative based on internal rules of knowledge for critical thinking, make correct judgments and make

application in practice.

RQ3: What is the relationship between critical thinking ability and English writing ability?

This question intended to examine whether the teacher could integrate the teaching of thinking skills into the training process of foreign language ability, and whether the students could be able to transfer and utilize these strategies learned through the critical teaching writing into their writing and therefore produce well-organized and persuasive writing.

RQ4: How can teachers improve students' English writing ability through critical teaching?

For promoting students' critical thinking skills and English writing abilities, a critical writing teaching mode was explored from the experience of the empirical study, including how to design the teaching plan and the concrete teaching steps, choose the proper teaching content, and set the criterion for critical writing evaluation.

3.3 Research Methodology and Instruments

3.3.1 Empirical research methods

Based on the theoretical framework of "critical writing teaching", this research took an empirical study on the experimental class and the control class. Students from two parallel classes in the first year of the non-English major of local university were the subjects of this study. The two classes have similar overall English proficiency according to their similar scores on the National English Matriculation Test (NEMT). They were randomly be divided into experimental class and control class for a semester experimental study. After experiment teaching for one semester, analysing the data collected in pre-test and post-test of the two classes

comparatively by the way of quantitative and qualitative methods, to find out whether the students' critical thinking ability and English writing skills would be promoted significantly under the guidance of the critical writing teaching.

Before the experiment, the students in both classes each were asked to write a composition and complete the critical thinking disposition questionnaire as pre-test. The experimental class adopted critical thinking in English writing teaching, while the latter adopted traditional writing teaching. Both classes were taught by the same teacher and both classes time were in the morning, which can basically guarantee the internal and external validity of the experimental study. At the end of the experiment, students in both classes would be asked to complete a composition and a questionnaire as a post-test.

In the writing test process, all students were required not to use their real Chinese (or English) names in the name column of the composition, but to use six digits or six English letters instead. Writing was carried out in a language laboratory. Students were required to use a computer to write and finally submit an electronic version of the writing to minimize the disadvantages that the scorer may be familiar with the students' handwriting and other disadvantages lead to subjective scores in the scoring process.

After writing, the student's writing text were compressed and sent by email to two teachers who have been teaching English writing for a long time and have rich experience in English writing evaluation. They gave an anonymous scoring according to the scoring criteria of the critical writing; the criteria and examples of analysing the writing text are attached in the appendix list (see appendix 9). The average score of the two scorers'

evaluation scores will be used as the final score of teacher evaluation; meanwhile, the students' English writing texts also used the network (http://www.pigai.org/) for intelligent evaluation.

After the experiment, the teacher and ten students chosen randomly were interviewed for collecting their feedback for the critical thinking teaching and getting more about the status and problems of the students' critical thinking ability. The outline of the interviews with the teacher and the students, as well as one example of interview transcripts are attached in the appendix list (see appendix 6, appendix 7 and appendix 8). Finally, quantitative, and qualitative methods were used to analyze the changes of the two groups' critical thinking ability and English writing level in the pre-test and post-test to find the correlation between critical thinking ability and English writing.

3.3.2 Questionnaire

The California Critical Thinking Disposition Inventory (CCTDI) was developed by Facione (1990) and other 46 cross-disciplinary specialists based on Facione's critical thinking tendency theory to assess college students' critical thinking disposition. (Facione and Facione, 1992). Until now, the CCTDI has revised many times and has been converted into many different languages, it is the most popular tool employed by many researchers to investigate people's critical thinking disposition (Yeh, 2002). The original items in CCTDI were translated into Chinese for the first time by Yeh in 2002, that was California Critical Thinking Disposition Inventory Chinese Version (CCTDI-CV). For achieving the purpose of effective testing, the questionnaire used in this study is adapted from to CCTDI-CV to investigate students' level of critical thinking tendency according to each degree of critical thinking disposition.

The questionnaire was employed to pre-test and post-test the students' critical thinking tendency in both experimental class and control class, respectively. There are 50 questions totally in the adapted questionnaire from seven scales such as: truth-seeking (8 items), open-mindedness (8 items), analytical ability (8 items), systematicity (6 items), self-confidence (8 items), curiosity (4 items) and maturity (8 items).

The truth-seeking scale is used to test students' eagerness of exploring the truth and the willingness to accept different opinions. This scale would reflect whether the students have the flexibility when facing various choices and ideas.

The open-mindedness scale tests whether students could tolerate various opinions, whether they would show respect to others who have different views and whether they have open minds to understand a diverse world.

The difference between open-mindedness and truth-seeking is that truth-seeking disposition focuses on pursuing knowledge for the purpose of understanding or learning the information, even doubt or abandon their current opinions and values. Open-mindedness is more associated with acceptance which recognizes others' right to have different ideas.

The analytical scale is to test students' ability to deal with difficult and challenging problems, whether they are sensitive to potential troubles, whether they could foresee the consequences rationally on the base of evidence. Whether students are always aware of the possible problems, and they consider analysis as an efficient approach to solve problems. Through the scale to find out whether students are active to make use of critical thinking in reasonable inquiry activity when facing troubles.

The systematicity scale is to find out whether students have the disposition

of dealing with challenges systematically by the way of methodical and concentrated consideration. This scale focus on the order of solving complicated problems and test students' diligence of discovering correlated information on the existing issues.

The self-confidence scale tests students' self-confidence in the process of reasoning and decision. Self-confident students could make great judgments and others also have faith in them at the same time. They have confidence that other people trust them to deal with difficulties and help them to make reasonable decisions.

The curiosity scale tests students' disposition of inquisitiveness. The curious students would attach great importance to extensive knowledge, be willing to understand the law of matters and become knowledgeable people.

The maturity scale tests the students' cognitive maturity and cognition ability, whether the students have the disposition of making rational judgments according to the context in certain situations when facing problems.

In this study, Cronbach Alpha Reliability Coefficient (Cronbach.α) of the adapted CCTDI was 0.826 in total, suggesting that these items in the questionnaire have satisfactory reliability.

3.3.3 Interviews

After the teaching experiment, interviews were conducted to investigate the opinions of students in the experimental class and viewpoints of the teacher about the critical writing teaching model which helped students to reach the learning achievements. In order to get the reliable feedback, ten

students from the experimental class were selected randomly. In order to acquire much more comprehensive feedback on the implementation of the critical writing teaching and some related questions about their English writing experience, every fourth students in the class were invited to participate in semi-structured interviews face to face separately. The interview questions for students and teacher were list respectively in appendixes (see appendix 6 on page 184 and appendix 7 on page 186). For avoiding interruptions and providing a relaxed circumstance, each interview would last about 10 to 20 minutes. The students were permitted to use Chinese to express their opinions and viewpoints much better if they wish and offer feedback as much as they could.

The teacher was interviewed individually. During more than 30 minutes interview, the teacher talked about her experiences in the experimental teaching period, including the most effective strategy she utilized in the teaching process, the common problems occurred between the students, how to evaluate students' English writing, her views on the relationship between students' critical thinking ability and English writing ability and her suggestion for improvement of college English critical writing teaching in the future.

After getting the interviewees' permission, all the interviews were recorded in a voice recorder which would benefit for the researcher to concentrate on the interview and only have to note down some key points. After the interviews, a transcriber was utilized to transcribe the interviews' recordings. By reading through to check any missing words or spelling mistakes. For better understanding, the initial transcriptions which included language errors or structural mistakes were revised into standard writing. Chinese transcriptions were translated literally into English at

first before being revised into the standard writing. One transcription of the interviews was attached in appendix list (see appendix 8). The methods employed to analyse the interviews are included in the sub-section 4.3 of chapter 4.

3.3.4 Network Interaction

With the rapid development of information networks, students' learning content, learning space, and learning mode are all undergoing tremendous changes. Much richer learning resources makes students' learning content more diverse. Various learning websites and apps are very convenient for assisting English writing teaching and learning. On these learning platforms, teachers could take advantage of these tools to find and share the learning materials with students and select appropriate topics for teaching writing.

There are a variety of teaching writing resources, such as online learning guidance provided by MOOCs (massive open online courses) and online lessons, as well as video, audio and text information that are closer to life. The rapid development of the Internet has brought about the continuous increase of shared resources, global synchronization of social software and a variety of online dictionary which could help students understand and use English more accurately.

Because the writing time in the English classroom is limited, it is necessary to use the advantages of the Internet to implement extended class, so that students can use more time after class to write multiple drafts. The online automatic writing scoring system can be used as an option for extended class, such as iWrite (http://iwrite.unipus. cn/) and Picai.com (http://www. pigai.org/) are the two popular automatic scoring software in China.

Assisted by modern information technology, the English writing evaluation system could combine online feedback, students' mutual evaluation and teachers' feedback. The online automatic feedback could make up for the shortcomings of teachers' slow feedback and give corresponding revision suggestions quickly, such as word choice and phrase collocation. The online timely feedback on writing errors can not only encourage students to make timely corrections, but also help teachers understand the students' writing process. The teachers' feedback on the content, sentence making, and overall structure are important complementary to the online feedback.

The teacher should take advantage of network, link pre-class preview, classroom learning, and after-class review appropriately. Combining online and offline teaching, teachers have more time to strengthen pre-class preparation, design writing topics, and guide students to broaden their thinking in writing. The teacher could send the prepared videos, courseware and writing materials to students in advance for helping students better master the text structure and writing skills.

Based on the feedback provided by the automatic scoring system, the teacher would summarize the common problems in the students' writing process, organize discussion for problem-analysis in class. The teacher could select some essays with a lot of errors and evaluate with students together in class, at the same time, pick out some good writings as examples to help students better understand how to make use of writing skills.

After class, the teacher could ask the students to modify the composition according to the feedback given by both the online system and the teacher, submit again and again until their compositions are revised to both

themselves' and their teacher's satisfaction. In this process, students review their own articles carefully, improve the content and sentence structure, and develop their English writing skills in the course of discovering and solving problems.

The teacher's remark on the students' composition through the network and the modifications of each time would keep records on the website, which is easy for students to consult the teacher's guidance at any time, and it is convenient for them to revise their writings and compare the changes in their essays. At the same time, the teachers could monitor the students' writing progress and revision process through the network easily, communicate with the students timely when there are some deficiencies in their writing, and help students to make some progress.

In addition, students would find it is much easier for them to make some suggestions for teachers online which would help the teachers to improve their teaching methods according to the students' advice. Through the interaction between teachers and students, students would learn how to think critically and analyse problems more logically.

In this diversified learning environment, the teachers should give full play to the leading role of online learning. They should not only act as knowledge imparters, but also organizers of English writing teaching. When using the online resources, the teachers should be familiar with the information, make corresponding adjustments and improvements to the students' response, and give personalized feedback to students' compositions, instead of letting automatic online feedback replace the teacher's review. The teachers are not only required to improve the ability to use modern educational technology, but also to strengthen communication with students, so that the network could assist the teaching

of college English writing much better. Enhancing the network interactivity in the teaching process could stimulates students' motivation to learn independently, which is conducive for students to grasp writing skills and improve their writing ability.

3.4 Research Participants

When I looked for students as participants, my partner teacher, who was responsible for the college English teaching of two freshman classes major in education, introduced my present study and distributed the information sheet (see appendix 2) to the two classes. All the students in the two classes were glad to take part in the study and signed the consent sheet (see appendix 3) voluntarily. As a result, eighty-nine first-year undergraduate non-English majors from two parallel classes in local university were chosen to be the participants of the study, both control class (A2021, 47 students) and experimental class (A2041, 42 students), their ages ranging from 18 to 20. The average English achievement scores of two classes achieved in the National English Matriculation Test (NEMT) were approximately the same, their writing quality and critical thinking disposition did not have any significant discrepancy at the beginning of the study. Before the teaching experiment, most of them did not receive any formal critical thinking training according to the questionnaire. Class A2041 was chosen randomly as the experimental class to adopt critical writing teaching, while class A2021 as the control group adopted traditional writing teaching.

In experimental teaching, the two classes were selected randomly which could be thought to be equal within the possibility. This randomisation of experimental class and control class before experimental intervention decreases the possibilities of inequity, therefore, the changes noticed after

the instruction could be attributed to the experimental teaching, which reduces the possibility of causal results and reinforces the validity of the study.

3.5 Ethics

This study abided by the *UWTSD Research Ethics and Integrity Code of Practice* strictly, and obtained Ethical approval from the University Research Ethics Committee, all the data and information involved in the study were adhere to the *UWTSD Research Data Management Policy* and there is nothing unlawful or invading privacy.

Two issues related to ethics were addressed successfully just before the study began. Firstly, approval was obtained from the authority of School of Foreign Languages in the local university where were the students from and the empirical teaching took place. Secondly, consent forms were signed by all the participants taking part in the study at the very beginning when the consent forms were handed out and explained. Thus, the participants taking part in the study were on their own free motivation with no coercion or pressure. The concrete information sheets and consent forms are in appendices.

There was not any embarrassing, sensitive or distressing topics in the study. The participants were told in advance that their performance would not affect their final exam results. The topics in the writing tests were close to their' life and easy to comprehend. Participants were required to use some digits or English letters instead of their real name in the process of study, their personal details would not be used in any report, publication or presentation, and every effort was made to protect the confidentiality.

On the questionnaire, participants were told in advance that they could

disregard the question and complete other sections which they feel more comfortable to respond. The option of "NAND" (neither agree nor disagree) was added as an alternative to disregarding the question completely. In the interview, the participants had the right to keep silence if they did not want to answer the questions. They had the freedom to limit or expand on any open-ended questions, and they had the right of terminating the interview or deleting the recording.

The collected data was held in strict confidence and the records of the study were kept privately. In line with the university's policy on the management of research data, anonymized data gathered in the study would be preserved. No identifiers related the participants or the department in the study would be included in any kind of published report. Research records were stored securely in a locked filing cabinet and the electronic data were kept on the researcher's private computer, which is protected by password, only the researcher have the access to the records.

3.6 Role of the Researcher

As a researcher, I was responsible for collection and interpretation the data is in this study. In order to avoid my biases and subjectivity, it was very important for me to pay great attention to my relationship with the participants, the context in my study and the writing process. I had to examine and communicate my ideas and opinion with my tutor and my partner who involved in my study regularly.

For the purpose of justifying the data collection and analysis, I had to specify my motivation and make summaries according to connected experience. From reviewing related literature and studies, I needed to build up the theoretical basis and made choice for the research strategy in

my study.

In this study, my role was made explicit to both readers and the participants. I disclosed myself as a researcher, an interviewer and an observer. Before the data collection, I told the participants that they had the power to make a decision whether they would cooperate with me or to what extent they would like to collaborate in the course of collecting the data. Besides informing them I would work as a researcher and an observer; I identified them that I am a professional doctor student at the same time. By revealing our similar educational status, I would like to reduce their nervousness and consciousness of being observed to some extent deliberately.

As an English teacher in the local university, I am very familiar with the research situation. The teacher involved in in my study is my colleague. Even though my role shifted from a colleague to a researcher, there was a relaxed and supportive environment which was benefit for data collection and was much easier for us to understand and trust each other. Nevertheless, this kind of relationship would inhibit my observations for the data, causing predetermined understandings. When we communicated in a much more academic manner, both of us felt a little awkward to some extent. However, the advantages overshadowed the downside for data collection in the study.

The students participated in my study were new students I had never met before. Although I was not their teacher to the students involving in my study, they still show great respect to me in their replies. During the interviews, I tried to avoid ambiguity questions or unclear statements, bring up the investigating questions cautiously in order not to make them feel embarrassed. I showed great interest in what they were talking about

and communicated with them in a respectful and pleasant manner.

I was deliberately conscious of my particular controlling responsibility in the process of data collection and tried my uttermost to minimise the anxiety of the participants by asking them to select their own place and time for their interviews and allowing them to express their thoughts freely in their interviews and critical writings. When confirming the transcripts of their interviews, I let them to decide which part they would like to keep, and which part would be removed. Told all the participants that they had the right to withdraw from the study at any time without any reason. Even though I couldn't communicate with the participants face to face because of the COVID-19, they all cooperated with me patiently, which guaranteed the work of data collection.

3.7 Research Procedures

The experiment lasted for 16 weeks from March 2021 to June 2021. Students had two English writing lessons each week, therefore, there were 32 classes totally. 89 students from two classes major in education took part in this study, and their English level was similar according to their performance in the College Entrance English Examination.

The Information Sheet (see appendix 2 on page 175) which introducing the details of the study was hand out and read to the students. All the participants were informed that they were free to decide whether to cooperate in the study, they have the right to withdraw from the study at any time for any reason or no reason and their personal data would be kept confidentially. Consent forms (see appendix 3 on page 178) were signed by all the participants before the beginning of the experiment,

It took 90 minutes to do the pre-test, including 45 minutes critical thinking

disposition questionnaire and 45 minutes English writing tests. Students' critical thinking disposition was tested by a questionnaire adapted from to CCTDI-CV which was widely applied in various related studies by many researchers all over the world. The questionnaire of the adapted CCTDI-CV was attached as appendix.

An argumentative composition was applied to test the students' writing abilities. According to the scoring guidelines and rules, two teachers made a fairly objective assessment on students' writings. Afterwards, the interventional teaching was used to develop the students' critical thinking ability in writing. The teachers involved in the study have nearly twenty years teaching experiences and had been trained with critical writhing teaching methods before the research experiment. In the last week, a 90 minutes' post-test was taken to assess change of the student' critical thinking dispositions after 15 weeks training. At the same time, another composition which had the similar difficulty level with the pre-test was employed to retest students critical writing level to find out whether their writing skills had been promoted.

At last, the teacher and some of students were interviewed to collect their opinions about the critical writing teaching and a conclusion was made according to the influence and effect of the critical writing teaching.

3.7.1 The Pre-test

Before the interventional teaching, the study took an adapted CCTDI-CV to test critical thinking ability of two classes' students who were selected randomly from first year education majored students in the local university. Then totally 89 students in two classes were selected to be the experimental class and control class randomly in this empirical study. ClassA2041 (42 students) is the experimental group and class A2021 (47

students) is the control group.

All the students in two class were requested to write a composition testing their writing ability. The topic for the composition would be argumentative in nowadays and familiar with students, which could improve the students' consciousness to analyse materials, organize the structure, and express their ideas by the way of reasoning when writing their articles. Two experienced teachers were responsible for scoring the students' writing, and they have been instructed how to assess critical writing.

The writing scoring criterion in the study combined Stapleton (2001)'s model of assessing critical thinking in writing and Yu Jiying (2014)'s "integrated" standard of critical writing, evaluating the writing from the aspects of content, organization, appropriateness and language. The content takes up 30 percent of the whole score, organization takes 30 percent, appropriateness for 20 percent and grammar for 20 percent. From the standards we could see that the content, organization and appropriateness which related to critical thinking take up 80 percent of whole scores while the part of language decreased to 20 percent. Teachers' assessment should focus on the critical thinking abilities and each essay was evaluated on the basis of the number of arguments and the provided evidences. In order to ensure the reliability and avoid the teachers' subjectivity, a students' last score is the average score offered by two teachers.

3.7.2 The English Writing Teaching

The experimental class was taught with the critical writing instruction; while the control class was taught with the traditional approach. The different class designs of the two classes specified from the following

points.

Table 3.1 The Class Design of Experimental Class and Control Class		
The Design of English Writing Teaching	**Experimental Class**	**Control Class**
The Writing Preparation	1) Leading students to analyse the topic of writing from various aspects by the way of brainstorming and mind-mapping; 2) Requiring students to accumulate different viewpoints while discussing, asking them try to solve problems from multiple perspectives so as to help students adjust their thinking patterns and avoid receiving information passively.	1) Leading students to understand the topic; 2) Asking students to write the composition according to the requirements.
The Writing Process	1) Guiding students to make a framework for their writing, explaining their ideas orderly in a logical way; 2) Asking them to make judgments based on the collected information, using evidences to support their choices. 3) Requiring students to make their viewpoints clear by giving reasons for the idea they agree with or disagree with; 4) Organizing a variety of activities such as group cooperation writing and transformation standpoints writing to fully motivate students' enthusiasm and passion for writing.	1) Providing students with some writing models; 2) Attaching great importance to the spelling and grammar appeared in their writing.
The Writing Feedback	1) Getting feedback via numerous methods, for instance: self-assessment, peer-evaluation, the teacher's comments, and online scoring. Helping students recognize their problems in their writings and solve the problems by the way of discussion to promote their critical ability in writing; 2) Advising students to reflect on their own writing, making some modifications according to the suggestions given by the teacher or peer students, confirming that the critical thinking is promoted in their writing.	1) Evaluating students' writings according to the spelling and grammar; 2) Requiring students to memorize the template articles.

3.7.3 The Post-test

After one semester's experimental teaching, the same adapted CCTDI-CV was used to test the critical thinking dispositions of the 89 students again. The data of questionnaire were analysed to find out whether the critical writing teaching would influence students thinking habits and what was the effects to their thinking abilities.

The topic of English writing in the post-test has the similar difficulty with the pre-test, which was employed to check whether the students in experimental class had improved their writing skills after the intervention of critical writing teaching.

A comparison between the two classes before and after the experimental instruction was made to find out the effectiveness of the critical teaching, discussed the findings to pedagogical implications.

3.8 Data Collection and Analysis

To guarantee the research' reliability and effectiveness, all data collected in the study were collected and analysed by myself, the first-hand data was trustful and credible. The qualitative approach and quantitative method complement with each other to analysis the collected data, which would ensure the validity and dependability of the research.

3.8.1 Data Collection

The experimental data collection in this study included three aspects: 1. The English writing pre-test and post-test in the experimental class and the control class respectively at the same time; 2. Pre-test and post-test on students' critical thinking disposition in both classes by questionnaire; 3. Collected feedback on critical writing teaching from teachers and students participating in the experimental teaching by interview.

In order to observe the changes in the students' writing ability and their disposition of critical thinking, the longitudinal survey methodology was employed for data collection. Longitudinal study was popular in empirical research such as Yang et al. (2005) organized a 2-semester research to study the impacts of Socratic questioning to students' critical abilities in the US; Kuek (2010) made an experiment teaching with two groups of first year students at Upper Nile University for a 12-week of teaching critical thinking skills in Sudan (see section 2.2.5, in chapter 2). In the present study, a total of two questionnaire surveys in a teaching cycle (16 weeks), the first questionnaire was taken in the first week at the beginning of the first semester, the second questionnaire was taken 15 weeks later, the last week at the end of the semester, with the same content and the same survey items. At the same time, the two writing essays with similar difficulty levels are used to test the students' English writing proficiency. In the first questionnaire, 89 freshmen finished the CTDI-CV in the first week. In the second collection, the same students took the same questionnaire in the last week of the term. To maintain the validity of the questionnaire, all the participants were asked to make preferences on the basis of their own actual experience.

3.8.2 Method for Data Analysis

In my study, the current status of non-English majors' English writing and critical thinking ability were investigated, confirmed the relationship between critical thinking ability and English writing ability and explored the concrete critical teaching mode. According to my research questions, the mixed methodology, including qualitative and quantitative research methods, would be utilized to collect and analyse the data in my study. A pragmatic research process was designed at the beginning of the study aiming at finding the answers to my research questions.

Qualitative analysis was employed to deal with students' articles and the transcriptions of the interviews. Related aspects and information were categorized corresponding to the themes obtained from the collected data in order to identify whether there were any differences, changes, commonalities or connections.

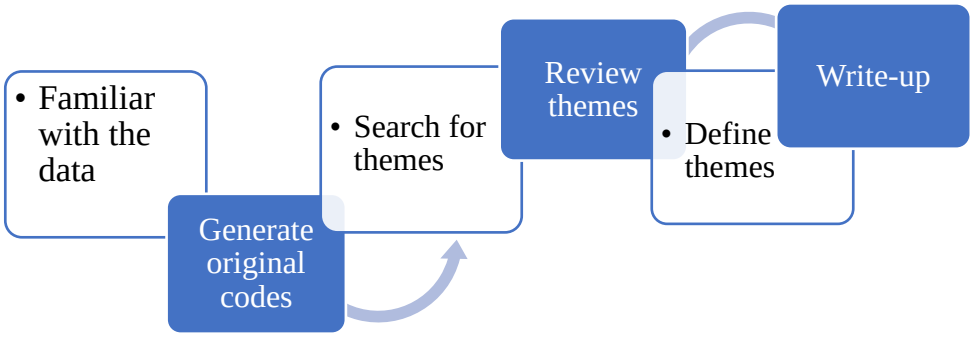
Only depending on one method could not get reliable data and insightful understanding, both quantitative and qualitative methods in the mixed approaches is important for me to accomplish the study's objectives. The mixed methods helped me to address my questions by exploratory and confirmatory, which could facilitate me to acquire better understanding and deeper insight.

3.8.3 Thematic Analysis

According to Braun and Clarke (2006), thematic analysis is a means of analysing qualitative data which involves data description, codes interpretation and themes construction. It is flexible to be applied to a wide variety of research frameworks and study questions. Thematic analysis could be used as an analytic method and be regarded as basis for other qualitative research approaches. For the seeking of understanding the collected data, themes should be created which are meanings derived from a collection of data to answer the research questions, rather than summarizing and classifying the collected codes simply.

In order to make explicitly qualitative analyse of the data collected from interview, the framework of Braun and Clarke (2006)'s thematic analysis was applied to in this empirical research. There are six steps in Braun and Clarke (2006)'s framework for taking thematic analysis as showed in the following picture.

Figure 3.1 Braun and Clarke's six-steps framework for thematic analysis



During the process of thematic analysis, the researcher could move from one step to the next step, nevertheless, the process is not definitely an iterative process. the researcher could move back and forward among the steps as many times as needed, especially when analysing a great deal of complicated data.

Step 1: Becoming familiar with the data.

At the very beginning of the thematic analysis, all the transcript of interview was read for many times until all the data was familiar. Even though it could be merged into the stages of coding the collected data and exploring themes directly, familiarizing with the whole data collection in the beginning would have a significant orientation for the collected data which was the groundwork for the next steps. The audio data in the interview ought to be transcribed at first and the practice of transcription was time-consuming but also provided a superb approach to be acquainted with the content of the interview.

In order to know students' learning experience in this empirical study, 10 students chosen randomly in the experimental class were interviewed to share their experiences and opinions about the critical writing teaching. For the COVID-19 epidemic, we took the online interview through

WeChat instead of face-to-face interview. The process of their interviews was recorded and transcribed. They all preferred Chinese in the interviews for better expression and their transcription were translated into English in analysing.

Step 2: Generating original codes.

The collected data was arranged systematically and logically at this stage. Large numbers of data were coded into some chunks of meaningful phrases. When the data was analysis, the research questions were always kept in mind and theoretical thematic analysis was conducted. Because of this, every piece of data that associated to the research questions were coded. Open coding was applied, which means there was not any pre-set codes. As the process of coding progressed, the codes were modified and improved.

Step 3: Searching for themes.

According to Braun and Clarke (2006), a theme contains something meaningful or significant to the data and the research questions. There might be some overlap between the stage of coding and the phase of recognizing primary themes. At this stage the codes were examined and a few of them obviously attached together and were collated into preliminary themes. At the end of this stage the codes had been organised into clearer themes which were particular to the research questions.

According to the research questions in the interview, all the data related to the same theme were put together, the five themes in the present analysis including: writing experiences, cooperation experiences, writing class activities, feedback of the experimental teaching and opinions on the critical writing teaching model.

Step 4: Reviewing themes.

The initial themes were revised, modified and developed during this stage. The themes were checked to find out whether they were making sense, and all the related data were collated together. The data related to each theme is classified and checked again for their significance to the theme. The themes should be distinctive but consistent with each other. The following questions were considered: • Whether the themes were making sense? • Whether the data were supporting the themes? • whether the themes were overlapping with each other, were they actually distinct themes? • Whether were there subthemes in the interior of themes? • whether were there other themes contained the data?

When all the data had been reviewed again, the data in one theme was grouped into several subthemes as different perceptions were found, such as feeling in English writing, skills and strategies for English improvement, writing frequency and difficulty in English writing were added as the subtheme in the theme of writing experiences; Opinions about group cooperation and opinions about other's advice were added as the subtheme in the theme of cooperation experiences; Writing strategies learned in the class and opinion about self-assessment were added as the subtheme in the theme of feedback of the experimental teaching and advice for improvement was added as the subtheme in the theme of opinions on the critical writing teaching model. The code details were listed in the following table 3.2: *Themes and Sub-themes Table*.

Table 3.2 Themes and Sub-themes Table

Theme 1	**Writing experiences**
• Feeling in English writing • Skills and strategies for English improvement, • Writing frequency • Difficulty in English writing	
Theme 2	**Cooperation experiences**
• Opinions about group cooperation • Opinions about other's advice • Opinion about self-assessment	
Theme 3	**Feedback of the experimental teaching**
• Writing strategies learned in the class	
Theme 4	**Writing class activities**
Theme 5	**Opinions on the critical writing teaching model**
• Advice for improvement	

Step 5: Defining the themes.

This stage was to refine the themes once more and to recognize the 'essence' of every single theme (Braun and Clarke, 2006, p.92). What was the meaning of the theme? What was the relationship between the main theme and the subthemes if there were any subthemes, how did they interrelate with each other? What was the relationship between themes?

The theme of writing experiences was to analyse the students' practice in English writing such as their assessment on their own writing skills, the difficulties in their writing, how often they usually practiced English writing and what approaches they generally took to promote their English level. Through analysis the data in this theme could find out the answer to the research question of what is the current status of English writing for non-English majors.

The data in the theme of cooperation experiences and activities in the writing class told us students' experience in group cooperation and their opinions about teamwork. What did they think about other' advice

including classmate's suggestions and the teacher's comments. What kind of activities they would like to take part in writing class, and which one did they think was effective for improving their writing skills.

From students' feedback about the experimental teaching we could get to know what kind of English writing strategies did they acquire through the critical writing instruction and what did they think about the value of self-assessment in their writing process. At last, students' opinions on the critical writing teaching model and their advice were collected for the teaching improvement in the future.

Step 6: Writing-up.

The last stage included the themes analysis and write-up a conclusion. The summary discussed the implication of the findings in a concise and logical way, providing necessary evidence for every theme and utilizing rich samples in the collected data to describe the findings in the thematic analysis.

Table 3.3 Themes and Research Questions Table

Research questions	Themes
RQ1: What is the current status of English writing for non-English majors?	1. Writing experiences • Feeling in English writing • Skills and strategies for English improvement, • Writing frequency • Difficulty in English writing
RQ2: What is the current status of critical thinking disposition for non-English majors?	2. Cooperation experiences • Opinions about group cooperation • Opinions about other's advice • Opinion about self-assessment
RQ3: What is the relationship between critical thinking ability and English writing ability?	3. Feedback of the experimental teaching • Writing strategies learned in the class
RQ4: How can teachers improve students' English writing ability through critical teaching?	4. Writing class activities 5. Opinions on the critical writing teaching model • Advice for improvement

3.9 Pilot Study

In order to prepare for the empirical study and avoid some errors, a pilot study was carried out in a small scale to test the feasibility of the data collection method. The teacher who took part in the study invited the colleagues in her teaching group to take part in the pilot study. The questionnaire of the California Critical Thinking Disposition Inventory (CCTDI) which including 75 items originally was handed out to the two teachers in the teaching office and asked them to finish in 20 minutes.

Even though both of them finished the questionnaire on time, they all found the items were too much and the given time was too short, they had to make their choices in a hurry. One of the teachers put forward that the English version questionnaire was hard for non-English majors to understand, it would be better to add Chinese version after each item. Another teacher suggested that it would be much convenient to make an electronic questionnaire through the APP Wenjuanxing which is a professional platform for questionnaire and survey, it would not only save a lot of printed papers, but also easy for analysing the collected data.

According to their feedback, the questionnaire was redesigned from the following aspects: 1.Adapted from to CCTDI-CV and only 50 items related closely to the seven critical aspects were selected. 2.The Chinese version was added to follow each item for the purpose of better understanding for the students of non-English major. 3. Prepared the electronic version of the questionnaire and launched it through the Wenjuanxing APP to the students involved in the study.

3.10 Case Study

As Tellis (1997) claimed that in order to overcome the shortcomings of quantitative methods in explaining the problems in research, case study could enable the researcher to understand the phenomenon from individual perception besides statistical conclusions in quantitative research. By combining the data from both qualitative and quantitative research, case study might account for a phenomenon by the means of comprehensive observation and analyse of the cases in study. A comprehensive longitudinal observation of a case is often applied in case studies. The longitudinal research would benefit for systematic study of the collected data and analysing the results across a long time. The present study on students' critical writing ability development was utilizing the

longitudinal case study which lasts for 16 weeks from the beginning of March 2021 to the end of June 2021. The collected data from pre-test, post-test and interviews identified the development of students' critical writing ability.

The current study belonged to the kind of evaluative research which pursues to verify the value and results of the research which highlights difference by evaluating inputs, outcomes and procedures (Payne and Payne, 2004, p.81). In the present study, for the purpose of investigating the effect of critical writing teaching, the difference between the students' pre-test and post-test and the students' interviews about their experience and opinions about the new teaching model were analysed. From this kind of research, the answer to the research question in the study about the relationship between critical thinking ability and English writing skills as well as the approaches the teachers took to develop students' English writing ability through critical teaching were verified.

As Yin (2009) claimed that a case study possesses the advantages of collecting data from various resources to explore an event and resulting in providing a comprehensive and detailed analysis of the collected data. The present study benefited from the advantages of case study as collecting data from multiple sources which corresponds with the research approach of mixed-methods and improved the study's reliability and validity consequently. In the meanwhile, the case study was benefit for obtaining a complete understanding in the significant influence of critical writing teaching for non-English majors, in addition to a comprehensive insight of the students' opinion about this kind of instruction.

Yin (2009) stated that a case study is a unique method to investigate some natural occurrence through a collection of data. Unique refers to just a very

small area in geography or limited number of subjects are observed comprehensively. Different from quantitative research which analysed the collected data on the macro level from the frequency of the observed phenomena, case study perceives the data from the micro level. Nevertheless, a single-case pattern was unable to support a generalising assumption, especially when the occurrence was unusual. For the purpose of overcoming the drawback, study methods triangulation such as questionnaire in pre-test and post-test, interview of different students and the involved teacher were utilized to ensure the validity of the present research.

However, the case study has some disadvantages. In order to achieve a complete grasp of an event, it would take a large number of time and energy for getting comprehensive information (Popil, 2011, pp.204-207). Besides, the researcher's personal preference or bias would influence the conclusions of the study (Grupe and Jay, 2000, pp.123-128). Some kind of questionnaires and open-ended interviews usually utilized in case study to obtain a deep insight; therefore, it was possible that the researcher's personal predisposition could be blended in the analysis of the discoveries. Hence, it was improbable that one case study would present a comprehensive description of the researched event. It was important to consider the possible generalisation in the case study. Nevertheless, the significance of the case study could not be denied, because it could offer some systematic hypotheses supported by a great number of data, which would be benefit for future studies (Flyvbjery, 2006, p.220). In this way, the case study would eventually be helpful for hypothesis testing and theory developing. Consequently, it is essential to give a definition of the meaning of the 'case' at the very beginning in a study, given that verifying the scope of results generalisation would influence the external validity of

the case study.

In the present study, the case refers to the empirical study which combined critical thinking ability cultivation into non-English major's English writing instruction in a university of China to find out the relationship between critical thinking disposition and English writing ability, generalizing a critical writing teaching model to promote students' critical writing skills which was the purpose of the study. The results of the empirical study could test the effects of the critical writing teaching, which would provide reference for deciding whether or not this kind of teaching model would be applicable in non-English major's English writing education.

3.11 The Teaching Content in the Empirical Study

The experimental teaching content was based on the teaching material *New Horizon English* II *(the 3rd edition)* which was comprised by 8 teaching units described in the teaching content table. Each unit was taught two weeks and each week had 2 teaching periods including critical discussing to explore the theme of each unit thoroughly, writing skill and reading skill training, and a writing project requiring to making use of the learned writing skills in various writing genres around the themes discussed in each unit.

Table 3.4 Teaching Content in Experimental Teaching

Content	Critical thinking	Writing skills	Reading skills	Writing project
Unit 1	What are the most important factors that encourage students to learn English?	How the introduction, body (examples), and conclusion developed	Reading for the key ideas in sentences	Writing a report on English learning strategies
Unit 2	Why is it important for college students to study the humanities?	Focus on an advantage / disadvantage essay	Reading for major details	The advantages of study the humanities courses.
Unit 3	How can young people cope with this difficult time period-the odyssey years?	Focus on a comparison / contrast essay (point-by-point)	Understanding figurative language	Generation gap between parents and children
Unit 4	Which is more important when it comes to marriage, one's appearance or character? Why?	Focus on narrative essay and how the story develops with details	Understanding idiomatic expressions	Love at first sight
Unit 5	Do you prefer to spend or save? Why?	Focus more on a comparison / contrast essay (subject-by-subject)	Understanding denotation and connotation	Is it necessary for students to get a part-time job to make an allowance? Why or why not?
Unit 6	How do you understand the English saying, 'Less is more'?	Focus on a cause-and-effect essay	Reading between the lines	The effect of iPhone addiction
Unit 7	What are the differences between men and women when it comes to their respective working styles?	Focus on an example essay	Predicting the author' ideas	What are the advantages and disadvantages of being a full-time homemaker?
Unit 8	In what ways do you agree that animal research helps medical treatments advance?	Focus on an argumentative essay	Identifying the author's purpose	Why are dogs considered as man's best friends?

A summary of teaching content from the textbook *New Horizon English* II *(the 3rd edition)*

As heuristic teaching could stimulate thinking, the teacher designed questions based on teaching content to prompt students to think and analyse. Critical thinking advocated questioning based on thinking and analysis, opposing the consensus and overall acceptance. Therefore, the cultivation of critical thinking ability in English writing teaching required the cooperation and effort of teachers and students, that was, teachers designed enlightening questions and encouraged students to ask their questions, including language knowledge, writing skills, and different opinions.

3.11.1 The Textbook in the Experimental Teaching

Appropriate textbooks could optimize the teaching content and integrate language learning and thinking expansion together. Teaching materials are related to teachers' teaching content, teaching methods and learning effect. The selection of teaching textbook reflects the teaching concept and styles. The content of good English textbooks has the characteristics of modern, enlightening, practical, interesting and international, which accord with students' cognitive development. In recent years, critical thinking has been integrated into many English textbooks due to the emphasis on college students' innovative thinking (Zheng Shutang, 2015)

Picture 3.1 The Cover of the Textbook: *New Horizons College English (the 3rd edition)*



After having compared with other textbooks, the English teachers involved in my study, and I together decided to choose the reading and writing textbook *New Horizons College English (the 3rd edition)* published by FLTRP (Foreign Language Teaching and Research Press). The content was close to students' life experience, and the column of "Critical Thinking" was specially added in the design. Most of the open questions were extension of the content of the text, which had a guiding and enlightening effect on teachers' lesson preparation and students' self-study, but also posed a challenge to teaching. Students should not only understand the basic meaning of the text, but also had to explore the deep implied meaning, which was the extension of discussion beyond the basic content of the text. The topics of the writing tasks were derived from the topics of the discussion.

For instance, there are two texts in unit 2 focusing on the importance of

college education. Text A put emphasis on the meaning of learning the humanities and Text B doubted the necessity of a higher education. The two texts employed argumentation development as the method to persuade, which were supported by numerous detailed examples, evidence, facts and data. Text A encouraged students to take humanity courses which would benefit them for further development. Text B put forward an opposite idea because of the economic recession. During the text analysis, the arguments were guided to be found and some critical discussion was directed. The content is closely related to students' professional education and career development; therefore, students have a strong resonance in the choice of humanities or science subjects. In the class, teachers organized a discussion about the advantages and disadvantages of studying humanities and science for the reasons of choosing their own majors, and the comparison between humanities and science. Some questions were put forward for critical discussing in groups, such as: Whether the humanities are more significant for a student's career development and life in the long run? What are the most important factors for choosing you majors? After class, a short passage as a writing task had to be finished according to the content of the discussion. Students were encouraged to express their own viewpoints supported by evidence or individual experience.

Text A in unit 2 illustrated how to make use of advantages and disadvantages arguments to support one's viewpoints. In the writing skills part, advantages and disadvantages essay writing was the focus of this unit. Therefore, the purpose of the writing project in this unit was to let students become familiar with this kind of writing.

Unit 3 introduced a new phase about life "odyssey years", which referred to a life period the teenagers had to confront and get through. Text A explained the meaning of "odyssey years" and the characters of the

particular period. On the basis of Text A, Text B described an unruly adolescent's wandering in the period of "odyssey years". Although the two texts were topic-linked, the styles of writing were distinct: Text A was expository to demonstrate and explain the phase of "odyssey years". Text B was narrative in which detailed description of the youngster's inside battle was in combination of lively dialogues. For deeper insight of the theme in this unit, the teacher organized the students to discuss their understanding of "odyssey years" and then offered them the chance to communicate their own growing experience with classmates. After exchanging their ideas with each other, students were required to write an essay about how to deal with the difficulties in their "odyssey years" and the strategies for bridging the generation gap in their family.

Unit 5 focus on the theme of "saving or spending". Text A discussed about the contradiction of ideas held by people: the "permissive" views convinced individuals to enjoy and spend money while the "upright" views instructed people to refrain one's desires and keep money. Text B told us a story about how a college student became in debt by using a credit card. Analytical writing was employed in text A and supported by statistics evidence and particular examples to illustrate that people had to be influenced by numerous commercial advertisements throughout their life. Parallel writing structures were utilized to explain "permissive" and "upright" ideas which set an example of using parallelism in a comparison / contrast writing. Alternatively, the writing skill of narration was exemplified in text B, describing the process of induction to using a credit card elaborately and vividly. The aim of this unit was promoting students' awareness of the commercial advertisements' temptation and the harmful results of unnecessary consuming behaviours. The teacher led students to take part in in the problem-solving discussing: How to resist the

temptation of commercial advertisements? How to develop a smart consume habit? How to get rid of bad consuming habits? How to solve economic troubles?

These questions were explored in the classroom through teachers' guidance and students' analysis which combined their own cognition to their investigation. In this way, there were collisions of different viewpoints, which were not only conducive to the expansion of thinking and vision, but also trained the students' expression.

3.11.2 The Experimental Teaching Procedure

Followed the prior studies by Yu Jiying (2014) and Qi Jiaming and Zhu Sha (2018) which were review in section 2.4.3 of chapter 2, the experimental teaching in the present study took brainstorming in the form of critical discussing was organized at the very beginning of each unit to introduce the theme and main concepts of the unit. Students were divided into several small groups randomly to prepare the discussing tasks collaboratively. Time was provided to collect related information and students were encouraged to express their viewpoints based on their understanding and their collected information. Some prompts and hints would be given by the way of analogies or questions to stimulate their critical thinking and expand their knowledge.

During the critical discussion, students were guided to collect the related information by themselves and share their ideas with others. They became the active learner taking charge of their study responsibly rather than passive listeners just receiving instructions. They could consolidate their understanding and construct new knowledge in the process of critical discussing, not only take the chance to practice their English expression but promote their cooperation ability as well.

After intergroup discussion, the representatives of each group were given the chance to share their opinions with the whole class. Students would be aware of the differences perspectives of each other and realize their own strengths and weaknesses, absorb more useful information and correct their former wrong concepts. The feedback from the teacher and other groups would provide additional explanations, the chance to scaffold collaboratively and learn from each other.

Critical thinking was encouraged during the whole discussing. From contemplating on their own viewpoints for preparing the discussing and listening to other's ideas, students would try to assess which approach was more suitable or reasonable and improve their strategies they would take for the similar situation next time to achieve better performance. Self-reflection and self-correction would help them to recognize and address their own advantages and disadvantages in thought and promote their self-learning abilities. This process of self-discovery is an essential section of the lessons and benefit for self-development. Discussion undoubtedly stimulated students' in-depth thinking and analysis. Teachers focused on the persuasiveness of opinions in evaluation and encouraged students to give reasonable explanations and examples instead of judging by "right or wrong".

Followed the theme critical discussing, writing skills and reading skills were instructed through analysing the given texts, a writing project related to the theme was requested in each unit to practice the learnt skills. The critical writing was a metacognitive process in which students reflect on their own thought and learning. The development of courses was not as straight line as described. The learning periods were interconnected and interwoven, and each learning process was developing on the basis of the previous periods.

The training of reading skills was preparing for critical writing, considering from various perspectives to promote critical ability. According to Pithers and Soden (2000), reading is another strategy that teachers could take to develop critical thinking abilities, such as reading between the lines, then trying to recognize concealed information and opinions. students could be required to read a passage and take certain opinions, then they could be asked to explore the validity of these statements and put forward their ideas. At last, students would be asked to conclude the validity the passage (Pithers and Soden, 2000, pp.237-249).The reading skills involved reading for the key ideas in sentences, reading for major details, understanding figurative language, understanding idiomatic expressions, understanding denotation and connotation, reading between the lines, predicting the author' ideas and identifying the author's purpose. Students would be able to make clear the purpose of a text, estimate the related information, take reasonable judgements, recognize profound ideas, make rational inference, and discover a variety of alternatives. These approaches could inform students the comparable characters between writing and reading and learn to apply the strategy in one area to the other domain.

Lessons for writing skills presented some components and skills of good quality writing. The strategies of writing and reading in each unit were taught explicitly and then the requirements of the writing project were list clearly to explain what kind of writing was expected before students began to write. Students could make use of the provided scaffolding to organise the contents and structure rationally and improve the quality of their writing.

For example, in the writing skills training of unit 2, the necessary elements for composing an advantage / disadvantage article were listed:

1. Introduction-The topic of the essay should be introduced in the introduction and the thesis statement would be presented.

2. Body paragraphs-Every paragraph in the body of the article should involve: a topic sentence to outline the main idea of the paragraph and evidence and / or examples to support the key idea.

3. Conclusion-A conclusion is to summarize the main ideas of the article and affirm the point of view.

The writing skill in unit 3 taught students how to make comparing and contrasting. From comparation and contrasting, we could find out take the advantage over the other. Comparing was focus on the similarities while contrasting was to point out the differences.

When writing a comparison / contrast article, students should stick to the following guidelines which were provided in the textbook:

1. Selecting the comparing points: There were numerous different aspects we could choose to compare. For instance, when we were comparing two persons, we could compare from their appearance, characters, backgrounds, routines and so on. Nevertheless, because of the words restriction, we'd better compare from two or three aspects to make the theme clear.

2. Providing a thesis statement: The writer's viewpoint should be expressed clearly in the thesis. In a comparison / contrast article, a thesis statement could like this: As compared to their parents, the young generation was more open-minded and more enthusiastic about learning new things.

3 Deciding the organization pattern: Two patterns are usually employed

to organize the specifics in a comparison / contrast writing: point-by-point and subject-by-subject. Point-by-point was effective for complex topics and this kind of organization was easy to follow.

4 Paying attention to coherence: Coherence was realized by transitional phrases or structure expressions which made easier to turn smoothly and efficiently from one point to another. Moreover, various transitions made the essay reads much more interesting.

The writing skills in unit 5 was focused on using subject-by-subject pattern to combine their supportive opinions in a comparison/contrast article. In this pattern, students should write one subject completely and then the other subject completely. If possible, they'd better write from the same aspects for the two subjects in the same arrangement. When just differences or only similarities were discussed, the points should be organized in the order from most-to-least or from least-to-most. Furthermore, a clear transition should be applied when moving from one subject to the other, along with the transitions every time as switching from one part to another when discussing the same subject.

There were some useful suggestions given in the textbook for writing comparison / contrast articles:

1. Ensure a summarizing thesis statement was included in the writing. A great thesis statement should ascertain the subject, specify the focus of the essay, and convey a view to the subject.

2. Emphasis the purpose of the essay. Normally, the main purpose of a writing was not just illustration the similarity or difference of the two subject. The primary purpose was to express a viewpoint, or by the means of contrast or comparison to make a conclusion.

3. Select significant points for contrast or comparison. The points chose for contrast or comparison would support the thesis statement and the purpose of writing.

4. Employ transitions as a guide for the reading. Transitions were extremely significant in comparison/contrast writings, proper transitions would lead the reader to keep up with the development of the ideas in the article.

The existing knowledge enable students to learn different writing genres easily and employ critical thinking into various topics. Consequently, students were exposed to several genres in the experimental teaching, and they were hypothesised to combine the skills of writing and reading with their critical ideas and transform the strategies into their writing tasks. The ability of analysis, reasoning and inference was in line with the requirements of critical writing, and embody in the evidence, judgement and conclusion appeared in their writing projects.

3.12 Validity and Reliability in Mixed Methodology

Validity is corresponded to the accuracy of conclusions and reliability is indicated the stability of results. Validity and reliability would enhance precision and reduce the chances to be influenced by the bias of researcher in qualitative research (Singh, 2014, pp.77–84). The validity and reliability of the collected data could be enhanced by making use of different kinds of approaches to acquire accurate information, which is essential to make sure that results are sound and believable. Validity in the study of mixed research methods guarantees the successful combination of qualitative and quantitative approaches. I focused on three kinds of validity in more detail for my study, namely the validity of content, the validity of response and the validity of scoring, these kinds

of validity interacted with each other. That was to say, the teaching content would influence the students' response and similarly the scoring standards of writing tasks would affect the writing performance.

3.12.1 Validity of Content

Content validity focused on analysing the content of a designed study to check whether the content is highly related to the study objects. Content validity signifies the relevance and characteristic of the measurement relating to the writing skills and critical ability it expects to evaluate, which would promote by the means of test specification (Carmines and Zeller, 1991, p.20). Even though the students participated in the study were from different areas in China and had various cultural backgrounds, they were all freshmen from the Education School in the local university. Most of them start formal learning of English were start from grade 3 in primary school and had been learnt English for more than ten years. The average score of the College Entrance Examination is 107.19 (the total score is 150), the highest score was 132, the lowest was 80. The average score of the experimental class was 108.03, the highest score was 124, the lowest was 84; The average score of the control class was 106.35, the highest score was 132, the lowest was 80. Therefore, the participants could represent students of various standards.

The teaching content in the study was constructed by 8 units and each unit contained four main steps, including theme's critical discussing, writing skills instructions, reading strategies training and theme writing projects. All the teaching content was based on the textbook *New Horizon English (the 3rd edition)* which was widely used and very popular in the colleges and universities all around China. The teaching content was consistent with the skills required in university education, focusing on developing

students' critical writing skills.

The students in both experimental class and control class knew that they were taking part in the study, and they were assessed on critical ability disposition and writing skills in English. Actually, challenge is part of the education procedure in China and most students are constantly informed of being tested. This kind of awareness is necessary and important to inspire and motivate students to promote their performance.

3.12.2 Validity of Response

Shaw and Weir (2007) claimed that cognitive validity could be referred as the validity of response. They thought that finishing a writing task is a cognitive processing which symbolizes the closeness of the writing contexts to real life. Six writing cognitive validity parameters were identified by them, such as: macro-planning; organization; micro-planning; translation; monitoring and revising (Shaw and Weir, 2007, p.34). Because of the importance of these cognitive validity parameters involved in the process of writing, they would be discussed in detail.

According to Field (2004), macro-planning refers to students would take a broad view of their ideas based on their knowledge and information at the very beginning of the writing process. Their previous experience and the genre of the target writing could help them to set a writing aim for the task (Field, 2004, p.329). Organization means after generating the ideas into an abstract text, students would estimate the importance of the ideas according to their relationship with each other and decide which one is the most prominent and which one is relatively less important. During this process, students would form a rough idea for draft. When a rough draft has been formed, the writers would begin to decide how the

text would be developed. During the micro-planning process, students would consider which information is proper for their writings. Students would convert their manuscript from abstract form to formal language during this process.

The precise language in the writing should be different from each other. According to Field (2004), some students would create full sentences during this cognitive processing while others might keep their collected information in some key words in a writing outline (Field, 2004, p.329). Monitoring is a cognitive act; students would go through a complicated procedure at various stages of writing during the self-monitoring processing. Field (2004) claimed that students would check the spelling, punctuation, grammar, and the accuracy at the lowest levels of writing, while students at higher stages would inspect their produced content for its relevance to the writing task objectives and to the general development of the text structure in the writing (Field, 2004, p.330). Students would focus on the descriptions of the produced writing to improve it in the processing of revising which is not a linear procedure but a recursive process (Hayes and Flower, 1981). They would revise their writings at different level of writing, from sentence to paragraph and from words to the entire text. Field (2004) claimed that the process of monitoring, editing, and revising would feedback with each other and could affect any former stages, initiating the student to make a progress.

Concisely, the writing processes discussed above has described the different stages of writing. Shaw and Weir (2007) argued that from the perspective of cognition, a valid writing would require the writer participating in all the procedures when the degree of proficiency being evaluated (Shaw and Weir, 2007, p.42). More explicitly, according to

Alderson et al. (1995), the response validation was the process in which the researcher pursues to assemble information on the way every writer would respond to the writing tasks, including what processes they would experience and their cognitive responding during the writing, this information is significant to indicate the task of writing (Alderson et al., 1995, p.176). In the process of critical writing teaching, students were required to collect relevant information according to the theme of each unit and conduct thematic content analysis before starting to write. They were divided into some groups for critical discussions, and the representatives from each group share the results of their group discussion with the whole class, from which students were inspired to design a mind map and complete the first draft. The teacher told the students the grading standards before writing, so that the students could grasp the key points of grading and process to critical writing consciously. After the first draft, the teacher evaluated some selected representative essays for demonstration. Students were organized to evaluate their own writings with each other and were expected to find the strengths and weaknesses of each other's composition. After peer evaluation, the students were asked to modify their writings before submitting them to the teacher for evaluation. After-school writings were required to submit their electronic draft on the website of www. pigai. org, which is for a special English writing assessment as teaching assist. Students revised repeatedly on the Internet, and finally submitted to the teacher for the final evaluation. Throughout the teaching process, students participated and cooperated actively in the whole process and made effective responses, which reflected the validity of the experimental teaching.

3.12.3 Validity of Scoring

According to Weigle (2002), using scoring standards consistently could

help us to achieve high validity of scoring by the means of inter-rater reliability which refers to getting an agreement between raters, intra-rater reliability which refers to self-consistency. However, she noticed that training for rating is an effective way for helping teachers offer predictable scores which reflects intra-rater reliability rather than just giving identical marks that indicates inter-rater reliability. (Weigle,1998, p.263). Explicitly, it is not easy to achieve inter-rater reliability during the evaluation of students' writing. Therefore, for the purpose of guaranteeing reliability and validity, the designed rating standards might not be adequate alone. Shaw and Weir (2007) proposed that we should depend both on writing evaluation standards and on rater training for standardization to give assessment criteria. Since every examiner has their own way of remarking the writing and perceiving the scoring standards, there is possibility to convey raters severe variances to an acceptably tolerable level (Shaw and Weir, 2007, p.181).

Bachman and Palmer (1996) claimed that this examiner training process should involve six phases: 1. All the examiners get together to read and discuss their understanding to the rating scales; 2. Analysis the samples which have been evaluated previously by professional examiners and discuss about the given assessment; 3. Training for rating various sets of writing examples and make a comparison with the assessments by expert examiners. Organizing some discussion about the criteria and the application of the criteria; 4. Giving marks to more writing samples and making more in-depth discussions; 5. All the trainees in the training programme make evaluation for the same writing samples. Check the consistency and the time needed for rating; 6. Making sure all the examiners are capable of offering reliable and effective scores (Bachman and Palmer, 1996, p.222).

All the two teachers involved in the study were qualified and all of them had more than twenty years English teaching experience, one of them was a specialist in English language education. Based on Stapleton (2001)'s critical writing rating model and the characteristics of critical writing teaching in practice, we discussed the standards of critical writing assessment in practice teaching together, referring to IELTS writing requirements and CET-4 and CET-6 composition scoring standards. After the standards is determined, a student's composition is selected as an example, and the two teachers are asked to score respectively according to the determined scoring standard to find out the differences between their scores and discuss the differences again to concretize the vague concepts and unify the dissenting views. Then take another student's composition as another sample, and ask the two teachers to score separately, and standardize the ambiguous understanding in application of the scoring standard once more, so as to maximize the validity and reliability of the scoring process.

Reliability is indicated the constancy of results, while validity is corresponded to the accuracy of results (Altheide and Johnson, 1994). Through employing several kinds of ways to gather information for acquiring accurate data, a researcher can increase the reliability and validity of the study. The intention of verifying reliability and validity in the study is effectively to guarantee that the collected data are sound, and the findings are truthful.

3.12.4 Reliability of The Adapted Questionnaire

The reliability of the questionnaire employed in the study was identified as well. Reliability is recognized as the accuracy and consistency of the results of the questionnaire (Braun et al, 2019), which indicates that

accurate questionnaire could be applied several times in different time and get consistent and reliable findings. There are some measures to keep the reliability, including pre-test, post-test, internal consistency and reliability statistics (Wong and Yamat, 2020). The reliability statistics such as Cronbach's Alpha was utilized to analyse the consistency of the questionnaire in the study. According to Bonett and Wright (2014), the formula of Cronbach's alpha is the most frequently applied reliability assessments in the study of social sciences.

The adapted questionnaire was handed out and finished by students from both experimental class and control class. In order to avoid misunderstanding or confusion, Chinese translation was provided to each item in English version of the questionnaire. The same questionnaire was employed twice in order to keep the consistency. One was taken at the very beginning of the experimental teaching to check students' original critical thinking disposition, the other one was taken at the end of the experimental instruction to find out whether there was any change in students' critical thinking disposition after the critical writing instruction. The data reliability was evaluated and described by the means of Cronbach's alpha which was applied to validate the reliability of the research. All the 50 items in the adapted questionnaire, the Cronbach's alpha was 0.826, which signifies the given items' internal consistency was extremely high and the adapted questionnaire enjoyed great accuracy.

3.12.5 Triangulation of the Empirical Study

Triangulation is the approach of gathering information from several perspectives including various resources of the subject being studied with the intention of obtaining comprehensive insight of the issues (Marwa et al, 2019), which would benefit for a better comprehensive understanding

of the subject sequentially. Triangulation could reduce uncertainty and diminish bias, decreasing individual impacts on the findings in the study. By combining the strength and advantages of every method to conquer the inadequacies and shortcoming of a single approach to reach a superior level of reliability and validity of the research.

Triangulation offers a measure of reliability as evidences and explanations from various resources getting together to the same issue; the data from triangulation regarded to be much more reliable since it is shown by different kind of data. Data from triangulation enhances reliability for the reason that every sort of data offers a distinctive, and intersecting perception concerning on the same event (Jick, 1979). Triangulation was combining various theories and methods to explore the multiple data collected in the empirical study, for the purpose of avoiding the vulnerability or instinctive predispositions and the challenges of taking single method or basing on single theory in the research. In this study, methodology triangulation, data triangulation and theory triangulation were applied to acquire comprehensive data and insight, at the same time, promote the validity and reliability of the research.

(1) Methodology Triangulation

Triangulation is one of the most valuable characteristics in the mixed-methods research. Methodology triangulation implies making use of more than one method to collect data. In empirical study, the most popular methodology is to apply both quantitative and qualitative measures together. Triangulation of methodology could enhance depth to the collected data (Manganelli et al., 2014, pp.94) and it is widely employed in most studies. In the design of research, methodological triangulation is particularly significant for getting the information by using various data

gathering methods (Forsey, 2010). Methodology triangulation could be applied to improve the interpretation and analysis of the data which are collected from various resources, it would help to broaden the insight of the researcher and explore the various fundamental problems in the study.

According to Creswell (2007), the results gained from several approaches could be utilized to confirm and validate with each other, which means that the outcomes from one method might also be refuted by the conclusions gotten from the other method. In my present study, quantitative data were accumulated to obtain an insight of the students' critical thinking ability and disposition, while qualitative data were collected to evaluate their critical writing performance and gather their opinions towards critical writing teaching. The quantitative data provided statistical support promoted the likelihood of generalising the conclusions from the qualitative analysis in the research, at the same time, the qualitative data accordingly assisted to understand and explain the discoveries from the quantitative data. Both quantitative and qualitative research were expected to ultimately provide a reasonable and valid insight of the effects of critical writing teaching to the students' thinking ability and writing proficiency. Furthermore, the students' critical thinking disposition was evaluated by both the California critical thinking disposition questionnaire and a writing test, which implied that the results acquired from one approach could cross validate with the findings gained in the other measurement.

According to Yin (2009), the application of mixed methods could assist to balance the correlation between macro research and micro investigation (Yin, 2009, p.242). Quantitative research focuses on overall structure feature of the social event, while qualitative research is particularly

capable of exploring small-scale happenings and personal performance. Consequently, the mixed-methods set up a connection between the macro features and micro characteristics of the issue in research. In this study, the data in quantitative research formed general outcomes indicating the influence of critical wring teaching from the statistical aspect, while the data from qualitative investigation offered more comprehensive evidences and detailed information of the progress in critical thinking disposition and English writing ability.

An adapted questionnaire was used as a quantitative method for pre-text and post-test, in which a five-point Likert scale was applied with answers for each item varying from strongly agree to strongly disagree. The quantitative data collected by questionnaire was to identify the current status of critical thinking ability of non-English majors and the changes in their critical disposition after the experimental teaching. Qualitative data was collected by interviews which were employed to investigate the students' opinions to the experimental critical writing teaching and the teacher's viewpoints about the teaching model.

Each method must keep rigorous in the study. The same questionnaire was employed in the pre-text and post-text to ensure the consistency. Two experienced rater after training to make sure their assessments were credibility. Systematic interviews of the teacher and students who involving in the study were conducted for the purpose of ensuring the reliability.

Both quantitative and qualitative methods were used simultaneously in the study and the results from the two approaches were complementary with each other. The most important aim of the methodology triangulation was to guarantee data completeness, using quantitative and qualitative

approaches to recognize the relationships and variations. Triangulation was used for better analysis and understanding of the collected data and to guarantee their validity and comprehensiveness.

(2) Data Triangulation

Data triangulation involves acquiring data from various sources, at different periods or in several conditions, which is commonly utilized in present research. Data from additional resources could provide more perception for a subject, and insufficiencies of one-source information would be minimalized as several sources could confirm the identical facts. At the same time, multiple data from different sources could provide complement with each other and promote the validity by obtaining more comprehensive information (Honorene, 2017, pp.91-95). It would be much easier to draw conclusions by analysis the multiple data and information supported in the research, therefore, the benefits of the data triangulation could strengthen the research outcomes. With the development of the empirical study, multiple data were collected in the research.

Before the critical writing teaching, all students in both experimental class and control class were requested to write a composition and complete the critical thinking disposition questionnaire as pre-test to find out the status of students' English writing level and their critical thinking disposition. At the end of the experimental teaching, students in both classes were asked to complete a similar-level composition and the same questionnaire as a post-test to compare whether there was any improvement in students' writing skills and critical thinking abilities.

In critical writing practice, students were asked to to submit their electronic draft on the website of www. pigai. org which students could

revise their draft repeatedly according to the given suggestions and submitted the final draft to the teacher for evaluation. Their electronic draft and corresponding comments would be kept on the internet as a reference for progress.

Student's compositions in pre-test and post-test text were evaluated by two teachers who have been trained to familiar with the standards of critical writing assessment and have rich experience in English writing evaluation. They gave an anonymous scoring according to the scoring criteria of the critical writing and the average score of the two scorers' evaluation was used as the final score of teacher evaluation; meanwhile, the students' English writing texts also used the network (http://www.pigai.org/) for intelligent evaluation. The marking criteria include four aspects: (1) Content (30%) requires the content to be coherent to the topic, supported by persuasive arguments and supplemented by evidences. (2) Organization (30%) demands rational writing structure and clear logic arrangement, transitions between sentences and paragraphs are natural and reasonable. (3) Appropriateness (20%) means the expression should be accurate and correct, and the viewpoints conveyed in the writing should be associated to the topic and appropriate. (4) Language (20%) refers to clear and fluent language expression, correct words spilling and grammatical sentences.

After the experiment, the teacher and some students were interviewed for their feedback about the critical thinking teaching to collect more information about the status and problems of the students' critical thinking ability. Quantitative and qualitative analysis were employed to compare the changes of the two groups' critical thinking ability and English writing level in the pre-test and post-test, as well as the correlation between critical thinking ability and English writing.

(3) Theory Triangulation

Theory triangulation, which means employing more than one theory as the supporting framework in the empirical research. In this study, general second language acquisition theory, cognitivism, Krashen's input hypothesis and Swain' output hypothesis provided the theory basis and guide for the empirical research of the critical writing instruction.

Second language acquisition (SLA) is the theory about the way students obtain another language apart from their mother tongue. Ellis (2010) claimed that SLA is usually known as an area of research in similarity to the first language acquisition, even though it means both a created educational discipline and the aim of research for the discipline (Ellis, 2010, pp.182 – 201). According to the theory of SLA, the process of acquiring a second language usually takes place when communication is being focused on. Cognitivism focuses on the way information is obtained, formed and saved by the mind, intend to help students to integrate new knowledge to existing information and support them to make the proper adjustment for their current information structure.

Swain' output hypothesis believed that understandable output could reinforce students' critical awareness in their expression, which would stimulate further efforts to make more input or improve their ability to understand input. Krashen claimed that input comprehension could be linked to the construction of output, second language acquisition only took place when the input was comprehensible and was intake by learners. Swain insisted that language intake consist of a circular procedure from input through the internal processing to output, and then from expression of output to input. Output production depends on the input assimilation directly. Both Krashen's input hypothesis and Swain's output hypothesis

consider the acquisition of second language including an extensive development in which the students have to transfer from one level of capability to an advanced level of competence.

The teacher has to be aware of the triangulation of theories in order to optimise the teaching strategies. Various activities and evaluation methods could be employed to conform to the different learning strategies. A great combination of these theories and strategies should benefit for reaching effective language teaching and learning in the practice of critical writing instruction. In the empirical teaching study, the teacher should create more opportunity for students to communicate with each other in English, such as critical discussing, experience sharing and peer assessment which would facilitate the acquisition of English critical expression skills.

3.13 Summary of the Chapter

In this chapter, research questions of the study were explained and the related research methodology and instruments employed in the empirical were introduced in detail, such as the adapted CCTDI-CV questionnaire which was to investigate students' level of critical thinking tendency according to each degree of critical thinking disposition; the interviews for students and the teacher to investigate their feedback from the experimental experience; and the online interaction platforms not only could provide multiple learning resources but also promote students' enthusiasm to learn self- autonomously. The participants and the researcher's role in the study were also introduced as well.

The research procedures were explained comprehensively from the aspects of the pre-test, the design of English writing teaching and the post-test in the study. The utilized data collection methods and mixed data analysis approaches were described, especially the thematic analysis for the data collected from interview. A pilot study for testing the feasibility

of the data collection method was clarified, in the meanwhile, explained the present study as a case study to account for the studied event by the means of comprehensive observation and analyse of the case study.

The teaching content in the empirical study were described from illustrating the textbook which is the latest edition (Zheng Shutang, 2015) and the procedure in the experimental teaching, which was based on the former studies by Yu Jiying (2014) and Qi Jiaming and Zhu Sha (2018). In order to justify the collected data, validity and reliability in mixed methodology were explained from the validity of content, validity of response, validity of scoring and the reliability of the adapted questionnaire. For providing evidence to ensure the validity and the reliability of the study, triangulation of methodology, data and theory were described to acquire comprehensive understanding of the empirical study.

Chapter 4 Experimental Results

4.1 Introduction

In order to construct an effective critical writing teaching model, the collected data is analysed in this chapter to find out how to mobilize students' enthusiasm to participate in cooperative learning activities for developing their critical thinking abilities and English writing skills together. The practical data from questionnaire, interviews and writing tests showed the current existing problems in the experimental teaching and provided the evidence about the influence of the critical writing teaching.

Table 4.1 The Relationship between Data Analysis and the Research Questions

Research Questions	**Data 1 :** CCTDI-CV	**Data 2:** Students' writing	**Data 3:** Interviews
RQ1: What is the current status of English writing for non-English majors?	x	✓	✓
RQ2: What is the current status of critical thinking disposition for non-English majors?	✓	✓	✓
RQ3: What is the relationship between critical thinking ability and English writing ability?	x	✓	✓
RQ4: How can teachers improve students' English writing ability through critical teaching?	x	x	✓
Methods of analysis	Critical disposition analysis	Critical writing assessment	Thematic analysis

The results of the adapted CCTDI-CV (California Critical Thinking Disposition Inventory Chinese Version) in both pre-test and post-test of the experimental class and control class were compared and analysed, which told us the current status of critical thinking disposition and these findings addressed the second research question. The students' essays in both pre-test and post-test were assessed by critical writing marking criteria which was adapted from Stapleton (2001)' critical writing rating model. The findings indicated students' critical writing abilities which addressed the first three research questions. Thematic analysis was employed to analyse the interviews of students and teacher which got the feedback from both the teacher and students engaging in the experimental teaching and find the answers to all the four research questions in the study. Table 4.1 presented the overall relationship between data analysis and the research questions in the study.

After analysing the collected data from the adapted CCTDI-CV questionnaire before and after the experimental teaching, the results in both English writing pre- and post-tests and the interviews with the teacher and students, a range of findings were identified in the following aspects:

1. From the outcomes of the adapted CCTDI-CV questionnaire, it was found that the highest score of both pre-and post-tests were in the control class not the experimental class, and the highest score in the experimental class even dropped a little (-0.08) in the post-test comparing with the highest in the pre-test. The lowest score of the two tests also appeared in the control class, compared with the experimental class, the lowest in the control class made more progress in the post-test. The average score in the experimental class was a little less than

the control class in the pre-test, but much higher in the post-test (see table 4.10). These phenomena indicated that the experimental teaching had a positive influence on the overall level of the whole class but not an ideal effect on both the highest and lowest critical thinking disposition. The details of the results of the adapted CCTDI-CV are presented in the following section 4.2.

2. In the interviews after the experimental teaching, both the teacher and students expressed their similar opinions about the difficulties in the course of English writing, the developments after the critical writing teaching in students' writing proficiency and the positive influence of peer-evaluation as a learning process. At the same time, several students have some different attitudes towards the effect of group discussion in class. The teacher took the step of discussion in groups as an important preparation for writing tasks and expected the discussion would stimulate students to think critically. On the contrary, some students felt that discussion in a group just wasted their time, and it was difficult to unify the ideas in a group. Sometimes the discussion would disrupt their own thinking and they could finish the writing tasks quickly and smoothly by thinking independently. The section 4.3 described the details of the interviews' thematic analysis.

3. Comparing the experimental class's writing results between pre-and post-tests, it was found that among the four critical writing criteria (see table 4.19) , students made the greatest progress in organization, followed by content and language, the aspect of appropriateness was the least (see table 4.23); while comparing the results of the two tests in the control class, students made the greatest progress in appropriateness,

followed by organization and content, the development in the aspects of language was the slightest (see table 4.25). These differences between the two classes suggested that the experimental teaching had a positive influence on the writing organization and content, but the language expression and grammar knowledge were still the trouble to most students. The analysis details of the writing tests' results were presented in the section 4.4.

Triangulating these results of the adapted CCTDI-CV questionnaire, the interviews and the writing tests, the developments in students' critical disposition, the improvement of students' English critical writing proficiency and the feedback from the teacher and students, it could be inferred that the critical writing teaching could promote students critical thinking ability and motivate them to apply their critical abilities in their writings to realize the purposes of developing students' critical thinking abilities and overall writing skills simultaneously.

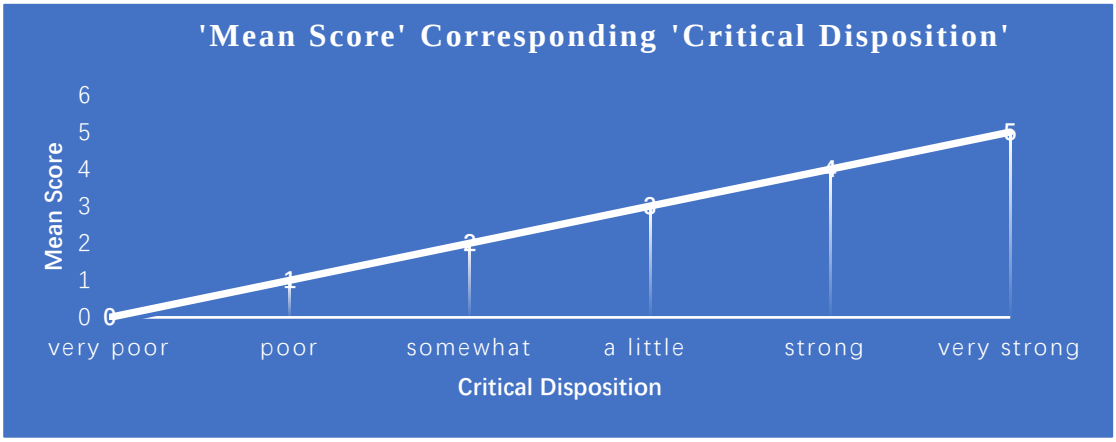
4.2 Result Analysis of Students' Critical Thinking Dispositions

This section of the chapter reports on different dimensions of students' critical thinking dispositions. These findings addressed my research questions about the current status of non-English major's critical thinking disposition in local university.

The first CCTDI was developed by Facione in1990 and translated into Chinese for the first time by Yeh in 2002 (Peng, Wang, and Chen, 2004, pp.644-647). The adapted CCTDI-CV in the study was applied to the students' critical thinking tendency's pre-test and post-test in both experimental class and control class. The 50 questions in the questionnaire are related to seven sub-scales of critical thinking disposition, such as: truth-seeking (8 items), open-mindedness (8 items), analytical ability (8

items), systematicity (6 items), self-confidence (8 items), curiosity (4 items) and maturity (8 items). Students were required to finish the questionnaire within 45 minutes and choose from 1 to 5 which indicate the degree from strongly agree to strongly disagree. The score of each item ranges from 1 to 5 as students choose accordingly, based on Facione and Facione (1992)' critical thinking measuring theory, the higher the score, the higher critical disposition, as indicating in Chart 4.1. When analysis the collected data, the average scores of each item and every sub-scale were calculated. The average scores range from 4 to 5 meant very strong critical thinking disposition; between 3 and 4 indicated strong critical tendency; the average scores range from 2 to 3 showed somewhat degree of disposition and the score less than 2 was regarded as having poor tendency. If the average score was between 2.5 to 3, the student's critical thinking disposition was in a consistent state; if the average score was more than 3, it means the student's disposition in critical thinking was developing positively; on the contrary, if the average score was less than 2, his or her disposition was contrary to critical thinking.

Chart 4.1 Score-corresponding Tendency

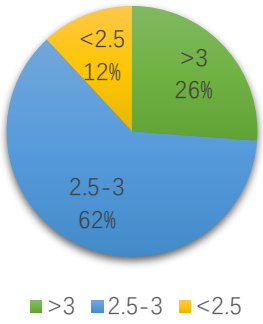


4.2.1 Result Analysis of CCTDI-CV in Experimental Class

This section outlined the results from the pre-and post-testing of the adapted CCTDI-CV . The cohorts were classified into three main groups, less than 2.5, 2.5-3 and more than 3.

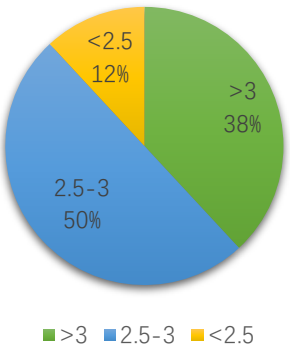
There were 42 students in the experimental class, all of them took part in the pre-test of critical disposition by the adapted questionnaire. The percentage of average score segments in the pre-test of experimental class was showed in chart 4.2, 62% of the students' average score were between 2.5 to 3, 26% of the students' average score were above 3 and the students whose average score less than 2.5 took 12%.

Chart 4.2 Percentage of Average Score Segments in Pre-test of Experimental Class



After a semester's experimental critical writing teaching, all the 42 students in the experimental class took the same questionnaire as the post-test to see whether there was any change in their critical thinking disposition. As the result showed in chart 4.3, the number of student whose average score were less than 2.5 was the same, took 12% of the whole class; the percentage of the students' score over 3 was increased by 12% to 38% and the number of students in the score range between 2.5 to 3 had decreased by 12% to 50%, which meant that the experimental teaching had a positive influence on some student's critical tendency.

Chart 4.3 Percentage of Average Score Segments in Post-test of Experimental Class



The comparison of average score between pre-test and post-test in the experimental class is showed in table 4.2, which demonstrated movement, where observed, of the students in their critical engagement after the tests were undertaken.

Table 4.2 Comparison Between Pre-test and Post-test in Experimental Class

Score	Pre-test		Post-test		Difference	
Range	No. of Students	Percentage	No. of Students	Percentage	No. of Students	Percentage
>3	11	26%	16	38%	+5	+12%
2.5-3	26	62%	21	50%	-5	-12%
<2.5	5	12%	5	12%	0	0
Total	42	100%	42	100%	10	24%

From the difference between the two tests, it was found that students in the bottom cohort remained the same, no movement upward. Students in the middle cohort (2.5-3) demonstrated movement upward.

Chart 4.4 indicated the frequency of the score in the pre-test, the bin width was set to 0.2 and counted from the lowest score in the class, it was found that in the pre-test, the most frequency appeared between 2.57 to 2.77 and there were 13 students in this score range. The number of students between the score 2.77 to 2.97 were as the same as between 2.97 to 3.17, both sections had 9 students. As a result, most students' score was between 2.57 to 3.17, 31 students took about 74% of the whole class, and only 2 of them got the score less than 2.37 and there were 5 students got more than 3.17.

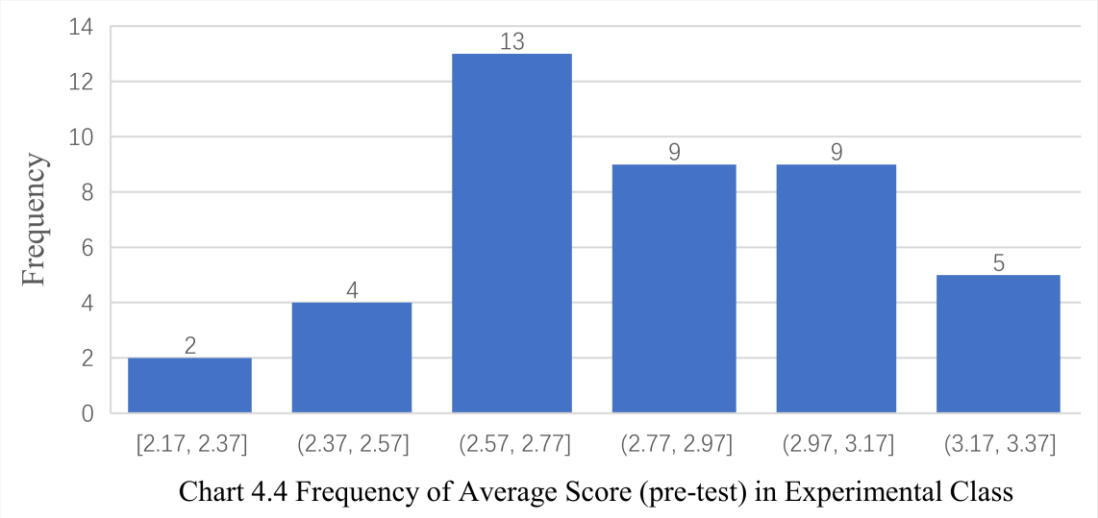


Chart 4.4 Frequency of Average Score (pre-test) in Experimental Class

As chart 4.5 showed, the most frequency score range changed to 2.95 to 3.15 and 12 students belonged to this range in the post-test. 10 students in the range from 2.75 to 2.95, 8 of them got the score between 2.55 to 2.75. There were 30 students in the range between 2.55 to 3.15, took about 71.5% of the whole class. 3 students got less than 2.35 and the least score was 2.15 and 5 of them got more than 3.15, the highest score was 3.35.

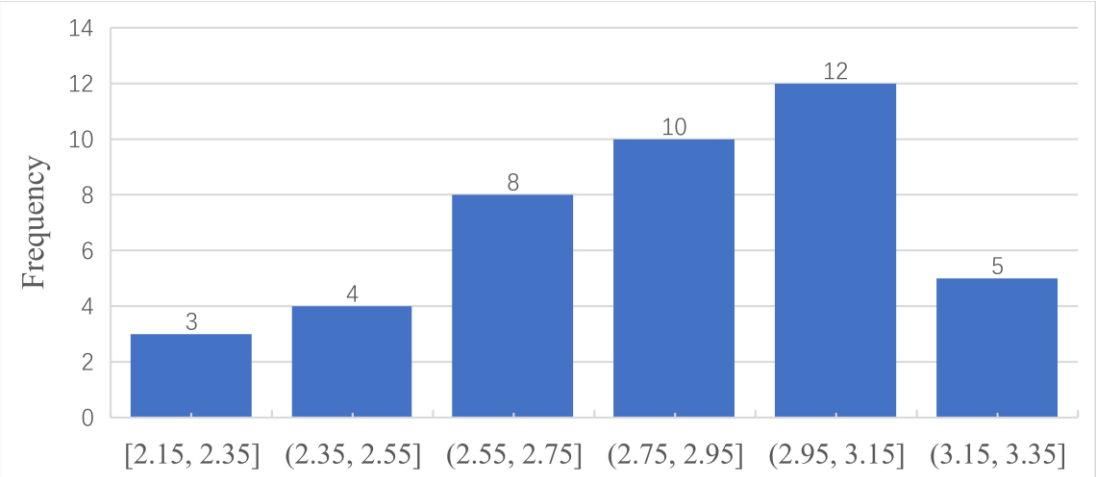


Chart 4.5 Frequency of Average Score (post-test) in Experimental Class

Comparing chart 4.4 and chart 4.5, in the pre-test, most students' score ranged from 2.57 to 3.17, the higher the average score, the less student number; in the post-test, the most frequency score range change to 2.95 to 3.15. The score ranges from 2.55 to 3.15 had most students, almost the same as in the pre-test and much more concentrated to the middle level, but the number tendency was just on the contrary, which liked an ascending ladder, the higher the score, the more students in this range. As the charts indicated that, compared with the data in the pre-test, more students in the higher score range in the post-test, which meant that the students' critical thinking disposition was also in an ascending tendency after the experiment teaching.

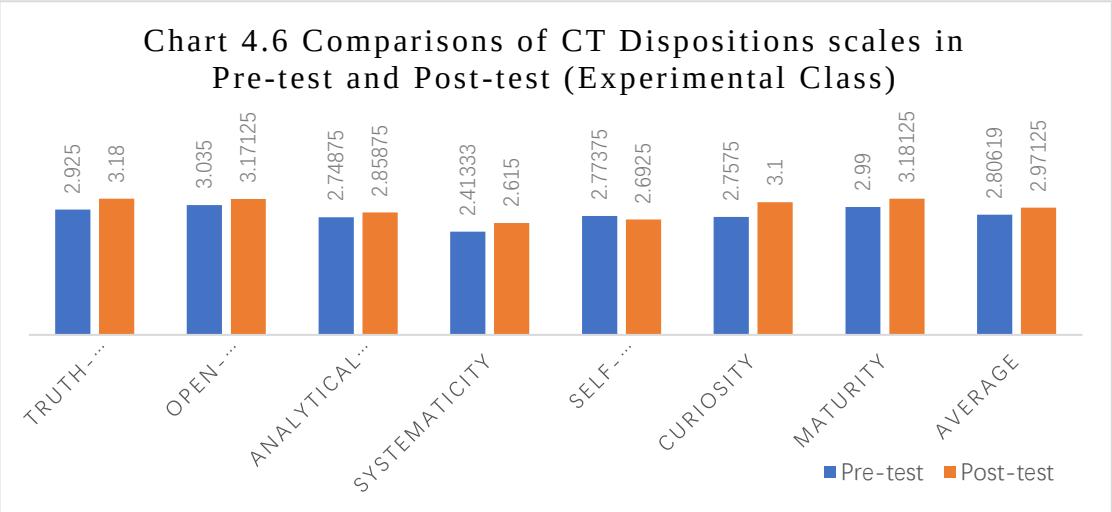
In terms of the specific sub-scales, as the results showed in table 4.3, the highest mean score in the pre-test was open-mindedness, which indicated that most students could accept different viewpoints and they would show their respect to the person having different ideas. Their maturity and truth-seeking level were nearly approach the middle level. The least score in systematicity meant that the students were not good at dealing with the challenges systematically in a logical way.

Table 4.3 Mean Score of Each Item of Pre-test in Experimental Class			
Scales	No. of students	Item's Number	Mean score in Pre-test
Open-mindedness	42	8	3.035
Maturity	42	8	2.99
Truth-seeking	42	8	2.925
Self-confidence	42	8	2.77375
Curiosity	42	4	2.7575
Analytical ability	42	8	2.74875
Systematicity	42	6	2.41333
Average	42	7.14	2.80619

Table 4.4 indicated the mean score of each item in the post-test. Maturity was the highest scale, followed by truth-seeking and open-mindedness. The scales of curiosity and analytical ability got higher score than the scale of self-confidence, which was a great change compared to pre-test. Systematicity was still the least score scale in both pre-test and post-test.

Table 4.4 Mean Score of Each Item of Post-test in Experimental Class			
Scales	No. of students	Item's Number	Mean score in Post-test
Maturity	42	8	3.18125
Truth-seeking	42	8	3.18
Open-mindedness	42	8	3.17125
Curiosity	42	4	3.1
Analytical ability	42	8	2.85875
Self-confidence	42	8	2.6925
Systematicity	42	6	2.615
Average	42	7.14	2.97125

After the experimental teaching, the average score of maturity became the highest one in the post-test, which meant more students became more mature and were able to make rational assessments in challenging situations. The next three high score were truth-seeking, open-mindedness and curiosity, the scores in the three scales were above 3 which indicated students' disposition in these scales were belonged to upper-middle level. Systematicity was also the least score scale in the post-test but increased more than 0.2 compared to the pre-test, which told us the students had made some progress in their logical organization ability.



From comparison of each critical thinking disposition scale between pre-test and post-test in experimental class, as the results showed in chart 4.6 and table 4.5, it was found that 6 scales out of 7 had different degrees of increase, only the scale of self-confidence had a little decrease by about 0.08. The largest increase was the scale of curiosity which grew about 0.34, the next two were truth-seeking and systematicity, which raised 0.255 and 0.20167 respectively. The average score was enhanced by 0.16506, which was another evidence that students' critical thinking disposition had improved to some degree after the experimental teaching.

Table 4.5 Comparisons of Dispositions scales in Pre-test and Post-test (Experimental Class)			
Scales	**Pre-test**	**Post-test**	**Difference**
Truth-seeking	2.925	3.18	0.255
Open-mindedness	3.035	3.17125	0.13625
Analytical ability	2.74875	2.85875	0.11
Systematicity	2.41333	2.615	0.20167
Self-confidence	2.77375	2.6925	-0.08125
Curiosity	2.7575	3.1	0.3425
Maturity	2.99	3.18125	0.19125
Average	2.80619	2.97125	0.16506

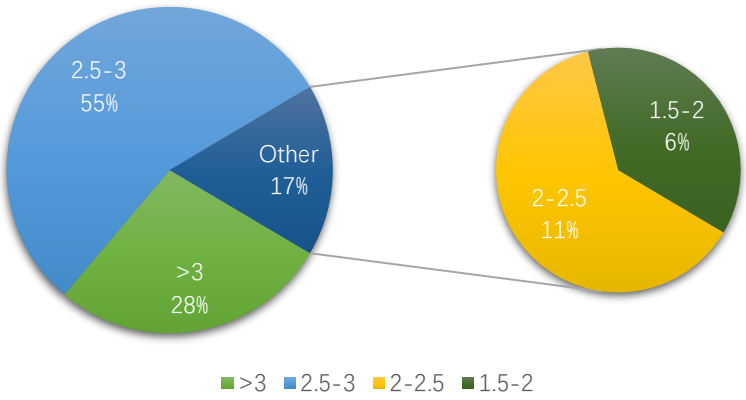
From comparing the change of students' number in different score range and the change of average score in different sub-scale, it was clear that under the influence of experimental teaching, more students got higher critical thinking disposition, especially in the scale of truth-seeking, which increased most in the post-test. The scale of self-confidence decreased only a little, the result was out of our expectation. It was found that in the face of complicated situation, the truth-seeking aptitude could have a little negative effect on student's confidence.

4.2.2 Result Analysis of CCTDI-CV in Control Class

The previous section of the findings highlighted the positive influence of critical writing teaching on students' critical thinking abilities. The purpose of this next sub section of the chapter is to analyse the change of students' critical ability in control class after one semester's traditional teaching. This offers a second perspective on the effect of new critical

writing teaching to students' various critical disposition scales.

Chart 4.7 Percentage of Average Score Segments in Pre-test of Control Class



47 students in control class participated in the CT disposition pre-test, and 45 students took part in the post-test after one semester. Chart 4.7 indicated that more than half of the students were in the average score range between 2.5 to 3 and had lower middle level disposition. 28% of the students in the control class had higher critical tendency performance but 6% of the class showed poor critical thinking disposition.

Chart 4.8 Percentage of Average Score Segments in Post-test of Control Class

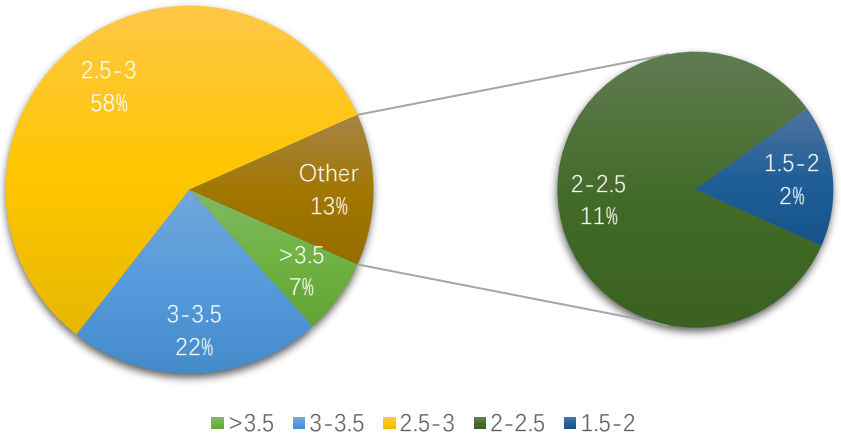


Chart 4.8 told us that after one semester's learning, the obvious change was that 7% of the students' average score were more than 3.5 which was a big breakthrough development compared to the pre-test.

Table 4.6 Comparison Between Pre-test and Post-test in Control Class						
Score	Pre-test		Post-test		Difference	
Range	No. of students	Percentage	No. of students	Percentage	No. of students	Percentage
>3.5	0	0%	3	7%	+3	+7%
3-3.5	13	28%	10	22%	-3	- 6%
2.5-3	26	55%	26	58%	0	+3%
2-2.5	5	11%	5	11%	0	0
1.5-2	3	6%	1	2%	-2	- 4%
Total	47	100%	45	100%	+8	20%

From table 4.6, it was clear that the students in the range between 3 to 3.5 was less than pre-test, reduced from 28% to 22%, while the number in the 2.5 to 3 range was increased a little from 55% to 58%. The percentage of students in the range of 2 to 2.5 was the same as before. There was a decrease in the group of 1.5 to 2 from 6% to 2%, which indicated that most students' critical disposition developed positively, some of them even reached upper-middle level.

Chart 4.9 showed the frequency of the average score in the pre-test, it was obvious that most students were in the score range between 2.43 to 3.23, there were 41 students out of 47 in the whole class. The most frequency in the pre-test appeared in the range from 2.83 to 3.03, and there were 13 students in this section.

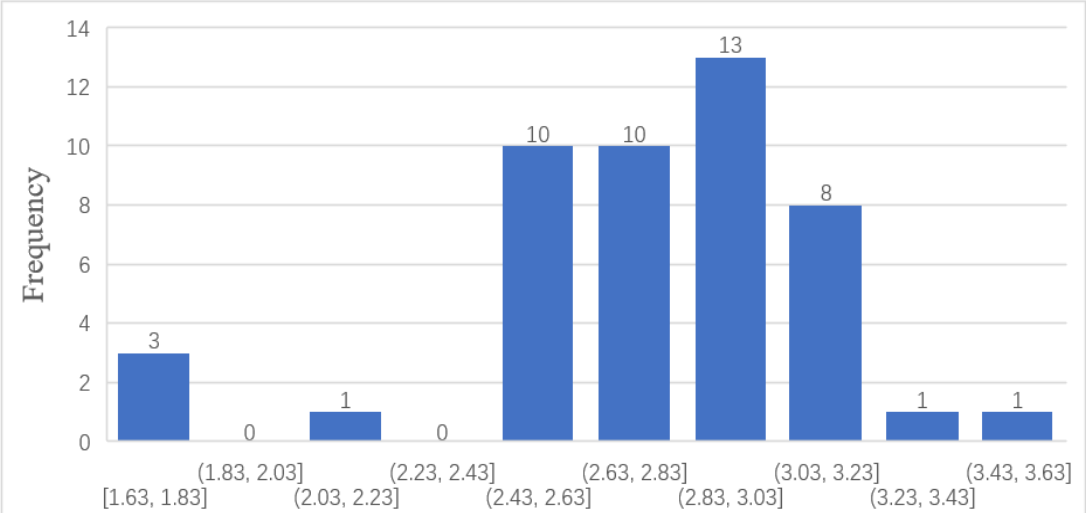


Chart 4.9 Frequency of Average Score (pre-test) in Control Class

It was noticeable that 3 students' average score in the pre-test were below 2, while there was only 1 student in the lowest range in their post-test as chart 4.10 demonstrated. It was evident that students' scores were in a wider range in the post-test from 2.19 to 3.59, and the most frequency changed to the period of 2.59 to 2.79, a bit lower than the pre-text, but highest score was higher than the one in the pre-test. The results showed that some students' critical thinking disposition in control class had developed negatively to some degree, and their performance was not stable.

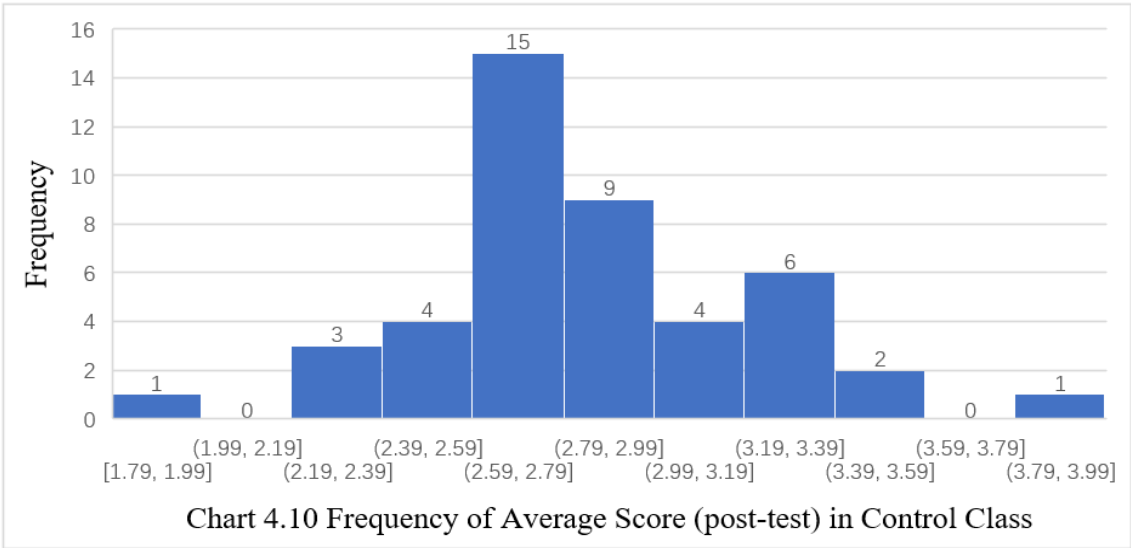


Chart 4.10 Frequency of Average Score (post-test) in Control Class

Table 4.7 showed students' performance in the specific scales ordered from high to low in the pre-test. Open-mindedness got the highest score and was the only scale had the average score more than 3. Systematicity was the least one, which was similar to the results of experimental class.

Table 4.7 Mean Score of Each Item of Pre-test in Control Class

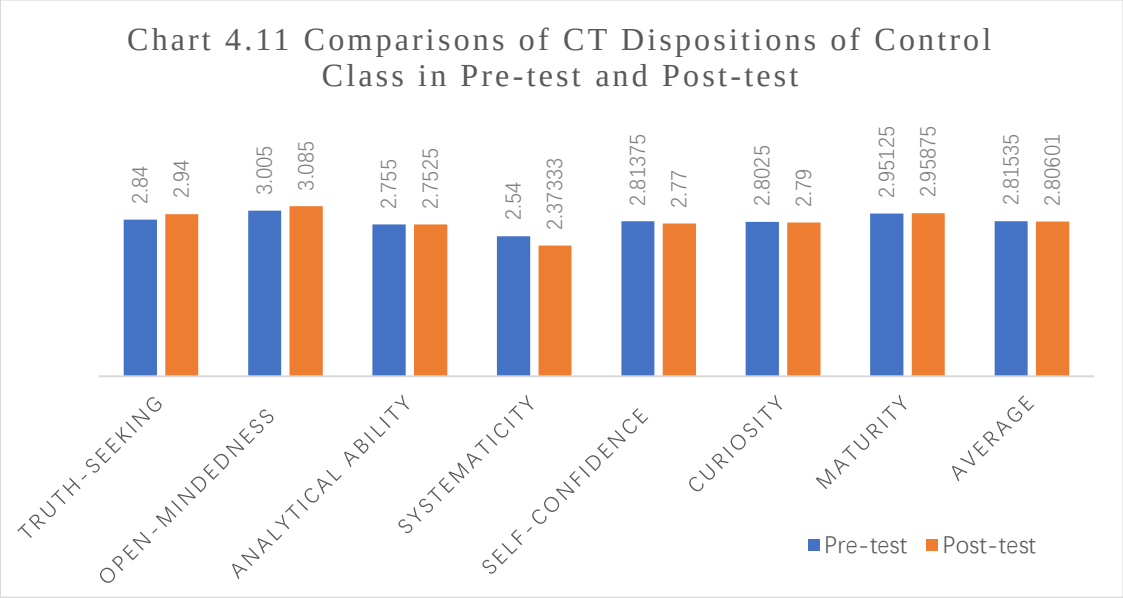
Scales	No. of students	Item's Number	Mean score in Pre-test
Open-mindedness	47	8	3.005
Maturity	47	8	2.95125
Truth-seeking	47	8	2.84
Self-confidence	47	8	2.81375
Curiosity	47	4	2.8025
Analytical ability	47	8	2.755
Systematicity	47	6	2.54
Average	47	7.14	2.81535

Table 4.8 demonstrated students' performance in the specific scales ordered from high to low in the post-test. As table 4.7 and table 4.8 showed, both the pre-test and post-test had the same scale order according to the mean score. Open-mindedness was the highest mean score scale, followed by maturity, truth-seeking, curiosity, self-confidence and analytical ability from high score to low score, and systematicity was lowest one. The finding told us that students' performance was steady in accordance with the scale, they had strong open mind to tolerate various opinions, but their ability to deal with problems in a logical and systematic way need to be improved, which is very important to discover the inner connection of some information and take a rational order to solve complicated issues

effectively.

Table 4.8 Mean Score of Each Item of Post-test in Control Class			
Scales	No. of students	Item's Number	Mean score in Post-test
Open-mindedness	45	8	3.085
Maturity	45	8	2.95875
Truth-seeking	45	8	2.94
Curiosity	45	4	2.79
Self-confidence	45	8	2.77
Analytical ability	45	8	2.7525
Systematicity	45	6	2.37333
Average	45	7.14	2.80601

Chart 4.11 demonstrated the comparison of pre-test and post-test in terms of each sub-scales. The blue column stood for the results in pre-test while the dark orange indicated the mean score in post-test.



From the data showed in table 4.9, three scale out of seven had showed different increase by comparing the results of the pre-test with the results of the post-test, the scale of truth-seeking promoted by 0.1, open-mindedness increased 0.08 and maturity improved 0.0075. At the same time, the other four scales had decreased to some degree, such as analytical ability reduced 0.0025, self-confidence lowered 0.04375, curiosity decreased by 0.0125 and systematicity lowered 0.16667 which was the largest reduction in scores, demonstrating a noticeable decline in logical analysis ability and systematic tendency compared with the results in the pre-test. As a result, the average score was decreased by 0.00934, which meant that the students' critical thinking disposition was not promoted but had a little bit adverse development even through it was not too obvious.

Table 4.9 Comparisons of Dispositions scales in Pre-test and Post-test (Control Class)

Scales	Pre-test	Post-test	Difference
Truth-seeking	2.84	2.94	0.1
Open-mindedness	3.005	3.085	0.08
Analytical ability	2.755	2.7525	-0.0025
Systematicity	2.54	2.37333	-0.16667
Self-confidence	2.81375	2.77	-0.04375
Curiosity	2.8025	2.79	-0.0125
Maturity	2.95125	2.95875	0.0075
Average	2.81535	2.80601	-0.00934

As the above results indicated from both the of students' number in different score range and the average score in different sub-scale in the pre-test and post-test, students in the control class did not show noticeable development in critical thinking disposition after a semester's learning, but a little negative development in the aspects as analytical ability, systematicity, self-confidence and curiosity.

Table 4. 10 Comparison between Experimental Class and Control Class

Class	Experimental Class			Control Class		
Scores	Pre-test	post-test	Difference	pre-test	post-class	Difference
Highest Score	3.33	3.25	-0.08	3.49	3.87	+0.38
Lowest Score	2.15	2.17	+0.02	1.63	1.79	+0.16
Average Score	2.81	2.97	+0.16	2.82	2.81	-0.01

4.2.3 Results Comparison between Experimental Class and Control Class

By comparing the CCTDI-CV results of experimental class and control class in table 4.10, it was found that the highest scores in experimental class were lower than the highest one in control class both in the pre-test and the post-test, while the lowest score in experimental class were higher than control class both in the pre-test and post-test.

The results told us that the critical thinking disposition level in experimental class was relatively steady and balance, while control class had relatively larger span difference in the critical disposition. Experimental classes had made some progress after a semester's learning

and increased 0.16 in average score while the control class decreased 0.01, indicating that the experimental critical writing teaching had great benefit for developing students' critical abilities.

4.3 Result Analysis of Students' Interview and Teachers' Interview

For the purpose of getting feedback from both the teacher and students about their practice and feelings in the experimental teaching, 10 students from the experimental class and their English teacher were interviewed after the experimental teaching. Refer to Braun and Clarke (2006), thematic analysis was employed in the study to analyse their answers in the interviews which would find the answers to different perspectives of the research questions. There were six steps in the whole thematic analysis as discussed in chapter 3 (see figure 3.1), and the detail process of each step was introduced in the section 3.8.3 (see chapter 3, section 3.8.3). The next sub-section presented the analysis of the results from students' opinions. The analysis identified their writing difficulties, their opinions about cooperation, their feedback of the experimental teaching, the advice for improvement given by students, the teachers' feedback on the experimental critical writing teaching from four aspects as the students' progress, common mistakes in students' writing, the strategies she took in the process of teaching and her suggestions for future teaching.

4.3.1 Analysis of Students' Interviews

In order to ensure the reliability of the interview, 10 students who represented all the other students in the experimental class were chosen at random to share their experience in English writing and their opinions about the critical writing teaching. By adhering to the *UWTSD Research Data Management Policy*, the students involved in the interview were named as student A, student B…student J. Their opinions represented most students' ideas in the experimental class. Following the work of

Braun and Clarke (2006), students' interviews were analysed from four different themes according to the research questions.

1.Opinions about Writing Difficulties

In order to explore the current status of English writing for non-English majors which was the first research question, the difficulties in their English writing were discussed in their interview. Table 4.11 summarized the themes related to students' writing difficulties; different colours represent different sub-themes.

Table 4.11 Thematic Analysis to Research Question 1

Research questions	**Themes**	**Students**
RQ1: What is the current status of English writing for non-English majors?	**Writing Difficulties** Difficult to express Poor vocabulary Grammar problems Poor connectives Confusing structure Lack of creativity Chinglish expression	A. B. A. B. C. D. F. G. I. J D. G. I. J C. F A. B. F. H. J D. E. G. H E. I

The following are some extracts from the students' answers in the interview, the different colours related to different themes in table 4.11:

Student A: "The biggest problem is that when I come across an idea in the writing process, but I don't know how to express it. I often intend to employ some advanced words to express my ideas but usually feel embarrassed and confused in the end. Sometimes I feel the structure of the article is not coherent enough."

Student B: “I feel very bad about my writing in English, mainly because I don’t have enough vocabulary. I think my biggest difficulty in English writing is that it is a bit difficult to express my ideas in English and the organization of my article is chaotic.”

Student C: “Every time I write a composition, I always feel the words I could use are limited, especially the connective expressions are very poor.”

Student D: “I think my writing idea is poor, and the grammar knowledge and advanced vocabulary are not enough.”

Student E: “The most difficulty in my writing is my idea always lacking creativity, and I usually express in Chingish.”

Student F: “To my personal experience, the hardest parts are the vocabulary and organization of the article. The structure of the article is always confusing and often unclear, and the connectives is not natural.”

Student G: “I feel that writing in English is difficult, because I do not have a good grasp of grammar and vocabulary, and I often apply the grammar knowledge incorrectly. The most difficulty in English writing is creative ideas.”

Student H: “The most difficult parts of writing an English composition are the creativity and the organizational structure of the article, which is usually the gap between an excellent article and a poor one.”

Student I: “In my opinion, the most difficult thing of English writing is the lack of vocabulary and grammar. When I was writing in English, I often felt distressed because of the lack of vocabulary, and I often wrote “Chinglish”.”

Student J: “My vocabulary is poor, and the grammar is not very well. The structure of the article is sometimes confused and often unclear in my

writing. In fact, I thought it was very interesting to learn English composition at the beginning, but later I found there were too many words that I didn't know, which brought me too much trouble."

When talking about their feeling in English writing, most students did not have enough confidence and thought their English writing level was poor. From their shared experiences, it was found that vocabulary, grammar, expression and structure were the main obstacles in their writing. During the ten students had been interviewed, 80% of the interviewed students worried about their poor vocabulary in writing. They said they usually intended to employ some advanced words to express their ideas but often felt embarrassed and confused in the end.

During their interviews, 40% of the students mentioned grammar and 20% of the students thought conjunction in writing were the most difficult parts. As some students claimed that they usually confused by the tense during writing, especially in some complicated and compound sentences. They often puzzled by the phrase collocation, and they thought it was difficult to transmit smoothly and naturally between paragraphs in their writing.

There were 20% of the students found difficulties in expression. Writing is a formal form of expression, which is different from the casualness of spoken language. People often use ellipsis, or with the help of body language in spoken language, incomplete sentences can also be understood. On the contrary, writing focuses on grammatical rigor. Some interviewee reflected that influenced by spoken English, some of them liked using simple sentences even Chinglish, which made their writing dull and informal. They found that their writings were short of complex sentences and appropriate clauses. 40% students pointed out that their ideas in writing were lack of creativity, which reflected that they realized

that they lacked critical thinking in their English writing.

2. Opinions about Cooperation

In order to find out students' critical thinking disposition, some personal opinions towards group cooperation, others' advice and self-assessment were discussed in their interviews. According to their reply, it was easy to find out that most students took a positive attitude toward cooperation in groups, only three out of ten gave negative responses which were listed in the colour of yellow in the table 4.12. The following table 4.12 summarized the themes related to students' critical thinking disposition from opinions about cooperation, other's advice and self-assessment; different colours represent different sub-themes.

Table 4.12 Thematic Analysis to Research Question 2

Research questions	Themes	Students
RQ2: What is the current status of critical thinking disposition for non-English majors?	***Opinions about cooperation***	
	Could combine different ideas together	A. C. D. E. G. I. J
	Could share the burden	C. D. E
	Could enhance collective honour and friendship	A. C. G. I
	Help with each other to improve together	A. D. E. G. J
	Help to reflect on one's own shortcomings	A. G. J
	Disrupt one's own thinking	B.
	Difficult to unify the ideas in a group	B. E
	Could write coherently by oneself	B. H
	Easier and quicker to do it alone	F
	Opinions about other's advice	
	Could provide different perspectives	A. B. E. F. G. J
	Be willing to listen to other's ideas	A. C. D. E. H. I. J
	Helping to realize shortcomings and mistakes	B. C. D. E. F. G
	Other's opinion is valuable	A. F. G. H. J
	Teacher has rich experience	A. E. F. G
	The most effective way for improvement	C. D. E. G. H. I. J
	Would think twice before taking action	D. E. I
	Opinions about self-assessment	
	Could reflect on oneself	B. C. E. F. G. J
	A process of self-improvement	B. C. E. F. H. I. J
	Comparing with others	C. D. J
	Finding out the shortcomings	A. C. E. F. G. I. J
	Thinking more critically	A.D
	Calm down	E.G
	Promoting self-awareness	H

The following are some extracts from the students' answers in the interview, the different colours related to different themes in table 4.12:

(1) Students' responses relating to group cooperation.

Student A: "I quite like group cooperation, because when we discussed

together, we could help each other and inspire writing ideas; besides, I could realize my own shortcomings when communicating with others and make some improvement."

Student B: "I don't like group cooperation, because in most cases we didn't have the same opinion, and we couldn't reach an agreement. What's more, discussion would disturb my own thoughts."

Student C: "I like working in small groups because it's better to get different ideas on the same topic together and help to broaden my perspectives. A clear task division in a group will make me feel less strenuous"

Student D: "As the we all know, more people have more power, teamwork and mutual help can get better results. Cooperating together could lighten the burden of every single person and could take many aspects into account at the same time."

Student E: "When we communicated in a group, we could accumulate different ideas and it was better for broaden our thought. I like the atmosphere of discussing together. When we were cooperating in a group, the task of everybody would become much easier. But sometimes there would be disagreement in a group, and not all the members in the group were very active, in that case , the whole progress of our task would be slow down. In all, I like to work with active people in a group and we could help each other and learn from each other."

Student F: "I don't like group work because it often doesn't get good feedback. Not everyone is active to complete the work together. It's usually easier and faster to do it alone."

Student G: "Group work could bring various ideas together and we can

better reflect on our own shortcomings and learn from others' strengths. It can increase our tacit understanding and help to improve our cooperation ability"

Student H: "I am not in favour of cooperation when writing and I believe the writing would be more coherent when I compose my writing independently."

Student I: "Communication together could bring inspiration for writing and summarizing everyone's ideas could always lead to unexpected results. The achievements could enhance our collective honour and promote our friendship."

Student J: "Group cooperation could help us find the gap between each other and improve ourselves by learning from each other, it could bring more inspiration for my writing."

From the responses of students' interviews, it was found that 70 % of the students gave different reasons in favour of cooperation, such as they could bring different ideas together and enjoy multiple perspectives to analyse the same topic, not only enrich their opinions but also enhance their friendship and collective honour during the process of cooperation. At the same time, everybody's burden became much lighter when sharing the task in a group.

Besides, some students expressed their different attitude toward group cooperation from their own experience, such as disrupting their thought and they would have finished her task much quicker without wasting the time waiting for others. Student H also claimed that it was easier to write coherent by herself without the interruption of others. Student B and student E expressed that sometimes it was difficult to get a unified idea in a group because everybody wanted to stick to their own opinions, and it

reduced the chance to present everyone's work in the limited time and opportunities.

(2) Students' attitudes towards others' advice during the interviews:

Student A: "I'd like to listen to the opinions from others, because everyone's understanding is different from each other, and their advice could provide different perspectives for me. Teachers can see my problems precisely and give some important suggestions."

Student B: "The opinions of others are often the points I usually neglect, and it is also a place where I am easy to make mistakes. My personal opinions are always limited, and the opinions of others may help me to consider from various aspects."

Student C: "Nobody is perfect, other people's advice can help you realize what I am lacking. It would be great to have some feedback from others so that I can make some improvements."

Student D: "I like the advice very much. From other's advice I can check my shortcomings and think twice before taking action to make some self-improvement."

Student E: "I am willing to listen to other people's ideas. From their opinions, I could not only expand my thoughts to different perspectives, but also help me realize my own shortcomings. In most cases, I would think twice before taking other's advice, and absorb the part which I thought was right and suited my style. My teacher has rich experience and her comments often hit the most important problem. Her professional knowledge could help me find the key points I often neglected and help me fill the gaps. "

Student F: "In my opinion, individuals have different ideas and listening

to others' opinions is the best way to realize my own problems. Especially my teachers, they can see my inadequacies quickly from their rich experiments."

Student G: "Other's opinion can let me realize my own shortcomings and give me more comprehensive perspectives to understand myself. The teacher's opinion is very important, because the teacher could analysis from a more professional perspective, they can also find many small mistakes and help me correct them in time."

Student H: "I would pay attention to the opinions of others. Their opinions are precious because different opinions could help me learn from others and make more progress."

Student I: "No matter who give me some advice I will show my respect and consider it carefully and then decide whether to accept or not. I would absorb the useful parts to improve yourself."

Student J: "I will absorb the opinions of others because their opinions are good for me and improve my own shortcomings which will make me better and expand my thinking."

All the interviewed students had positive attitudes toward advice from others and self-assessment. 70% of the interviewee expressed that they were willing to listen to the advice from other people. 70 % of the interviewed students thought advice from others could help them find their own shortcomings and some mistakes. Four of them mentioned that teachers' advice was very precious and gave their suggestions from their professional experiences. Four students out of ten said they would consider other's advice seriously and decide whether the given advice was reasonable and suitable for them to take any action.

(3) Students' answers in relation to their opinions on self-assessment:

Student A: "Self-assessment could help me realize my own problems more intuitively and improve my critical thinking level."

Student B: "Evaluation by myself can help me know myself better, and I can further improve myself in self-evaluation."

Student C: "Self-evaluation is still not comprehensive enough sometimes; I still have to rely on the evaluation of others to complete it. In terms of self-evaluation, I think this allows me to reflect on myself, realize my own shortcomings, and carry out continuous self-improvement."

Student D: "My own level is not high enough; The process of self-evaluation is rather difficult, and sometimes it is difficult to find your own mistakes and I need to think more critically in learning."

Student E: "In my opinion, self-assessment is a good way to reflect on my mistakes and it is a process of self-improvement, from reflect on myself, I could think independently and find out my own shortcomings. This is a very good way to help me calm down and realize myself."

Student F: "In terms of self-evaluation, I think this allows me to reflect on myself, realize my own shortcomings, and carry out continuous self-improvement."

Student G: "Thought process of self-evaluation, I would like to reflect on myself, also to question my own point of views. I will be able to calm down and check by myself seriously."

Student H: "Self-evaluation help me better position myself and improve myself, at the same time it will help me to promote self-awareness."

Student I: "Self-evaluation is an important process of self-improvement,

and it can help me to discover my own shortcomings more clearly."

Student J: "As for self-evaluation, I think it allows me to reflect on myself, detect my own inadequacies, and have the opportunity to summarize and improve myself. I would compare myself with others in the process, so as to find out my shortcomings and make progress."

Most interviewee believed that self-assessment was beneficial for finding out mistakes and making progress, which was the process of self-improvement. Three of them were not confident enough and they would consult others for comparison and evaluation. Two of them mentioned the process of self-assessment would promote their critical thinking and some students said they would become calm for assessment.

3. Feedback of the Experimental Teaching

For the purpose of finding out the relationship between critical thinking abilities and English writing skills, the feedback of the students towards the experimental teaching was collected during their interviews. Table 4.13 summarized the themes related to the relationship between critical thinking ability and English writing ability from students' feedback; different colours represent different sub-themes.

Table 4.13 Thematic Analysis to Research Question 3

Research questions	Themes	Students
RQ3: What is the relationship between critical thinking ability and English writing ability?	**Feedback of the experimental teaching** English writing skills have improved Critical thinking skills have improved More logical in reasoning Helping essay more organized Analysing from more perspectives More confident in writing Realize my shortcomings more directly	A.B.C.F.G.H A.B.C.D.E.G.I.J E.F.J A.B.E.G.I A.D.E.F.G.I D.E.J E.H

The following are some extracts from the students' answers in the interview about their opinions about the experimental critical writing teaching, the different colours related to different themes in table 4.13:

Student A: "My English writing skills have improved and the biggest progress I have gained through the new teaching method is the improvement of critical thinking skills, I began to pay attention to the structure of the whole passage, and I began to prepare the writing from searching different related information."

Student B: "The biggest benefit I got is knowing how to write a good English composition and my thinking became broader. At the same time, my writing structure gets better."

Student C: "I suppose my English writing ability has improved a lot. Through the new teaching method, I can see my improvement of logical thinking ability and get a deeper understanding of writing skills."

Student D: "After the new teaching I become more confident in writing. I began to think from different aspects and collect to collect information from various resources."

Student E: "I feel I have learnt a lot in the class, such as how to organize my writing. I have gotten into the habit of making an outline at first, and then adding content to it. I think critical writing teaching could help us consider from different aspects and make me realize my shortcomings more directly. I have learnt how to find various arguments quickly and how to write logically. I feel my way of thinking became much broader and more flexible. And I become more confident in English writing."

Student F: "I think that my understanding of writing has improved, and I became think more comprehensively after the current teaching, and I am more logic in writing."

Student G: "The new teaching model help me to improve my writing ability and my logical thinking ability. I became more fluent in writing after integrating many useful ideas and the whole writing structure became more reasonable."

Student H: "The critical writing teaching made me more aware of my own problems, it is helpful for my writing, especially in terms of looking for information, it allows me to find arguments faster."

Student I: "My articles are more organized and more reasonable in arguments. I would collect information from different perspectives."

Student J: "My critical thinking ability has been promoted and I became

more flexible in thinking and more logical in reasoning. Most important is that I became more confident in English writing."

From the answers of students in their interviews, it was found that there was a positive correlation between critical thinking and students' English writing. The cultivation of students' critical thinking ability could be well integrated with students' English writing, and the two could promote each other and improve together. Most students stated that critical writing instruction taught them how to consider from different aspects to collect data and they found that expanded minds were benefit for writing. Some students believed that they became rational in reasoning and flexible in argument. A lot of interviewees said their articles were better organized than before and they could write much more efficiently and fluently, their creative ideas were stimulated as well. Several students said they became more rigorous in thinking and confident in expression, their writings were improved from idea to structure.

4. Advice for Improvement

In order to explore an operational critical writing teaching mode, improve the teaching efficiency, solve the problems occurred in the experimental teaching and correct the inadequacy, some suggestions and advice were welcomed and encouraged in the interview. Table 4.14 summarized the themes related to the advice given by students to improve the efficiency of critical writing teaching; different colours represent different sub-themes.

Table 4.14 Thematic Analysis to Research Question 4

Research questions	Themes	Students
RQ4: How can teachers improve students' English writing ability through critical teaching?	**Advice for improvement** More interesting learning Adding more useful materials More diversified teaching Let the students think independently More communication Taking advantage of digital teaching Improving students' enthusiasm Group learning Cases study	C. E. J A. C. E. G G. D. E D. G. I A. H B. D. G. H. J F C.I

The following are some suggestions given by students from the students' answers in the interview, the different colours related to different themes in table 4.14:

Student A: "In my opinion, the teacher should take full advantage of digital teaching. There are abundant resources on the internet, I hope the teacher could share us the efficient and useful sources according to her own experiences."

Student B: "The teacher could add more games to stimulate our enthusiasm in learning. Such as taking out an article, let everyone find problems and correct them in a limited time, the best one could get some awards."

Student C: "I believe happy learning could create better atmosphere, and I hope is there would be more interesting and useful materials for our learning. In addition, giving us more cases as example to show what kind of standards we should meet."

Student D: "The most important thing is to promote our enthusiasm in English writing, encourage us to think independently. If possible, it would be better to have more interaction with teacher."

Student E: "I think the teacher's teaching is very good, if could add more interesting and useful learning materials to the classroom, such as some videos or some games, it would be better. Maybe giving more time for independent thinking could practice our thinking ability."

Student F: "I suggest that students could be divided into multiple groups in learning, and a group leader can be the assistant of the teacher and urge the students to work hard with each other, so as to achieve double result with half effort."

Student G: "As for suggestion, I hope the learning content could be richer and have more diverse activities in the future study, there would be more chances for communication with other classmates and the teacher to gain more inspirations."

Student H: "I propose that the current teaching methods should follow the changes of the times and apply more modern methods in our learning which would increase our enthusiasm to learn and promote the study efficiency."

Student I: " Giving more cases to analyse from multiple perspectives to improve our ability to explore problems. Besides, more communication opportunity for practice would be better. "

Student J: "If the teacher could assign us more interesting tasks after class such as watching movies on weekends, learning to sing some classical songs, or preparing some dramas for some special themes, students would learn more about foreign cultures and have more enthusiasm to learn."

From the interviewees' feedback, it was found that students were keen on some helpful and meaningful resources to increase their writing materials, they expected the English class could be more interesting and attractive. Some of them expected more chances for discussing with teachers and other classmates while two of the ten interviewees wished they could have more time for independent thinking before writing. A lot of the students said analysing some good and bad samples would help them comprehend the key points and avoid some common mistakes. In their interviews, different students hoped the teacher could pay more attention to writing skills and language knowledge according to their own shortcomings or interests, such as how to organize an article, how to write key sentences and how to express fluently.

Half of them conveyed that the teacher should make better use of the digital resources and modern technologies in the process of teaching which would promote the learning efficiency and increase their enthusiasm for English writing. The Internet provides richer and more significant teaching content to English writing teaching. By making use of convenient networks, diverse and massive resources for English writing ranging from text to video, audio and other multi-channel learning could be presented to students. Network is a new platform for students to learn English. These platforms not only improve students' own learning for English writing, but also broaden students' horizons to have multiple perspectives.

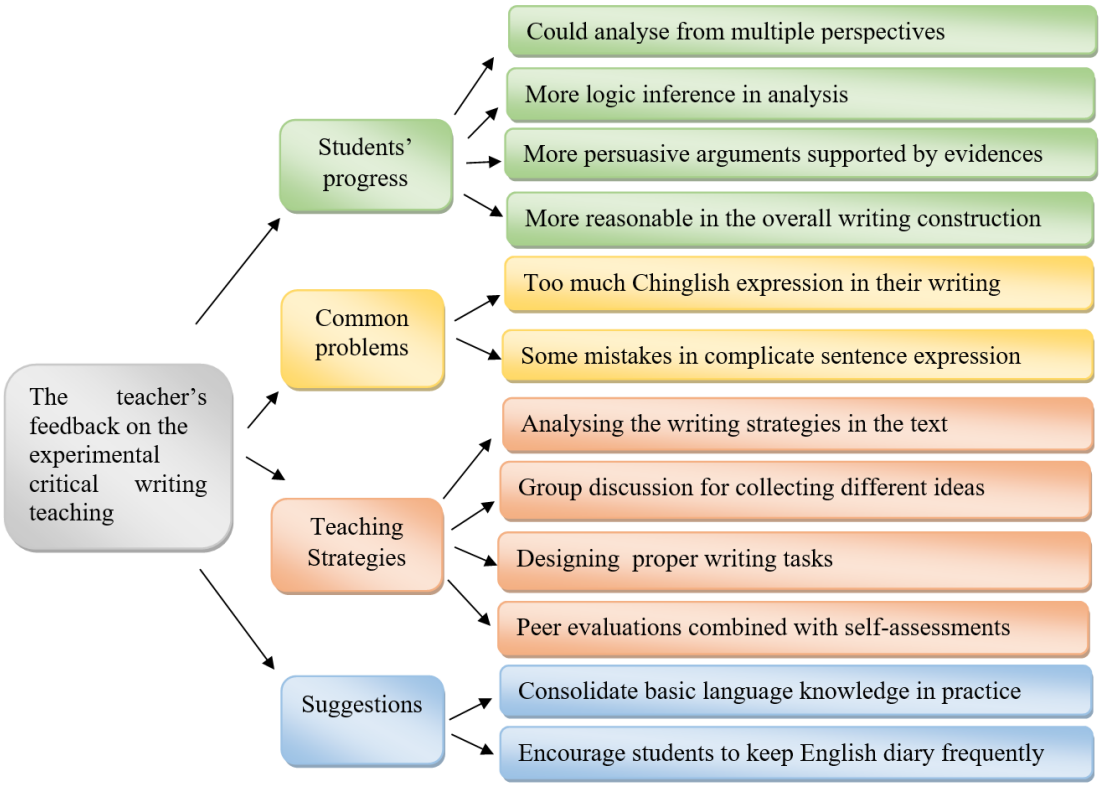
A few of them expressed their desire for more interaction with teachers. Based on various digital platforms, teachers could have more and more methods to interact with students, such as QQ, WeChat and online learning platform, breaking the boringness of traditional English classrooms. At present, various efficient online English writing platforms have promoted the increasing interest of students in English writing. Online real-time correction not only saves time but also provides students with more convenient feedback, so that students can understand their mistakes in time and avoid repeating them. The workload of teachers could be reduced which would guarantee the quality of teaching.

4.3.2 Analysis of the Teacher' Interview

As an important participant in the experimental teaching, the teacher played a significant role in the study. In order to acquire her feedback from her experience in the experimental instruction, the involved teacher shared her opinions about the experimental critical writing teaching in the interview on 17th of September 2021 after a semester's teaching. The experimental teaching was carried out from the beginning of March 2021 to the end of June 2021, after sorting out all the materials related to the teaching, the teacher summarized her experiences over her summer vacation. Because of the COVID-19, the interview was taken online through WeChat instead of face-to-face talk. The interview process was recorded and transcribed. In order to express her ideas more clearly, she preferred Chinese in the interview and then the transcription was translated into English.

During the interview, the teacher shared her feedback on the experimental critical writing teaching from four aspects as the students' progress, common mistakes in students' writing, the strategies she took in the process of teaching and her suggestions for future teaching.

Figure 4.1 The Outline of the Teacher's Feedback



In the interview, the teacher emphasized the importance of critical thinking in English writing, she said the ability of thinking critically could help students find more arguments for their writing, their ideas expressed much clearer and their analysis became more logical and more comprehensive. After training, students basically know how to collect arguments and how to analyse from multiple perspectives. The teacher noticed that the students with strong critical thinking ability were more reasonable in the overall writing structure, and their selected arguments are more persuasive.

She also discovered some common mistakes, such as there were too much Chinglish expression in their writing and some expressions were too rigid to read. She also found that a lot of students tried to employ some

complicated sentence to convey their meanings but always confused the subjects, and the tense in their sentences was inconsistent in most cases.

When talking about her teaching strategies, the teacher shared that the writing teaching should integrate into the text analysis, the effect was better than teaching writing skills in isolation. When explaining the text, students were guided consciously to analyse the arguments, the conclusions, and the overall structure of the text, discuss the advantages or disadvantages of the arguments and find out the supporting evidence. From analyzing the writing strategies in the text, students learnt the skills of making introduction, body (examples), and conclusion for an article, the methods of comparing advantages and disadvantages by point-by-point or subject-by-subject, the organization of cause-and-effect essay, the way to take an example in a writing and the strategy to draft argumentative essays. All these skills were very practical and easy to follow, which helped students to finish their tasks in the writing projects of each unit after critical reading and group discussions. She highlighted the importance of brainstorming to collect related arguments and draw the outline to have an overall structure plan of the article.

The teacher emphasized that group discussion was an important step for preparing the writing task. In the experimental study, students were divided into several groups according to their student number, they could get together in the discussion period and interact actively with each other. Discussion in group not only created an active and relax atmosphere for learning with each other, but also stimulated students to think critically. The teacher found that discussion in group could help students broaden their minds when they were exchanging their ideas together. The topics of the tasks were the focus of their communications, they would share their different understanding and various information with the group members.

The diversified ideas provided some inspirations which stimulated students to thinking critically. Cooperation activities such as debate between groups not only promoted their teamwork spirits but increased their attitude of open-mindedness as well.

The teacher mentioned that the familiarity of the topic was considered for the sake of information deficiency in the critical writing task designing process, which would influence students writing performance. Actually the topics in the writing tasks were related to the themes in each units which were familiar to the students. The themes in the textbook were relevant to students' life and encouraged them to think from different perspectives. From these writing projects, students practiced the strategies of thinking and writing, which benefited for their cognition development. At the same time, students learnt the steps and skills for coping with unfamiliar topics in the future.

The teacher summarized that when a writing task was being designed, the related expectation should be explored at the same time. In order to meet the expected goals, supporting materials should be provided to define and explain the task. This idea was in line with Ahmed (2018), he found in his study that supporting scaffolding was necessary for students to understand the writing tasks and apply critical thinking in writing.

The teacher in the interview highlighted that it was vital to inspire students to demonstrate their critical ability when facing the writing challenge. The rubric for evaluation criteria must be make clear at the very beginning, which would guide students to identify whether their writings was acceptable or not. It was necessary to provide some models to make students clear what kind of writing was expected and compared the examples with the criteria to demonstrate the requirements. Some

questions could be listed to help students inspire their critical thinking and provided more choices for them to respond.

The teacher shared that another important strategy she took in her everyday practice was organizing peer-evaluation after writing. It was an effective way for students to communicate and learn from each other. Students could find different perspectives from others' writings and inspired their own thoughts. At the same time, they were willing to draw some lessons from other's mistakes and avoid them in their own writings. Self-assessment was also very crucial for students to cultivate a good habit for self-checking. During this process, students could make some reflection and revision, which could help them to became much more critical and careful.

At the end of the interview, the teacher pointed out that as non-English majors, some students' basic language knowledge was inadequate, it was hard for them to compose very decent English expression, not mention high-quality critical writing. The teacher suggested that it was necessary to consolidate students' basic language knowledge in the process of teaching. Cultivating students' writing habit was vital for promoting their writing abilities. She found that there were few students wrote something in English besides teacher's assignments, which was far from enough for developing their writing skills greatly. As an English teacher, she suggested that students should be encouraged to write in English as much as possible, they'd better cultivate the habit of keeping diary in English which could benefit them in the long run.

4.3.3 Comparison the Feedback from the Teacher's and Students' Perspectives

For the purpose of understanding the effect of the experimental teaching

comprehensively, it was necessary to compare the feedback from both the teacher and students' perspectives. It was found that there were some similar opinions and differences as well after analysing their interviews. Comparisons of the two perspectives from the problems, the progress, the opinions towards group discussion and peer-evaluation are the focus of this sub-section.

The following table 4.15 compares the common problems from the teacher's perspective and difficulties from the students' responses, the same colour indicated the similar ideas.

Table 4.15 Comparison the Problems from the Teacher's and Students' Perspectives

Theme	Teacher's feedback	Students' feedback
Problems	• Some mistakes in complicate sentence expression • Inadequate basic language knowledge • Too much Chinglish expression in their writing	• Difficult to express • No way to start • No advanced vocabulary • Grammar problems • The organization of articles • Poor connectives • Confusing structure • Lack of creativity • No deep idea • Chinglish expression

Both the teacher and students mentioned the problems in English expression, especially in complicated sentences, inadequate vocabulary and grammar knowledge shortage led many difficulties in English writing and students were used to Chinglish expression unconsciously.

Table 4.16 displayed the progress students had made from both the

teacher's and students' feedback, the same colour stands for the similar opinions to identify easily.

Table 4.16 Comparison the Progress from the Teacher's and Students' Perspectives

Theme	Teacher's feedback	Students' feedback
Progress	• Could analyse from multiple perspectives • More logic inference in analysis • More persuasive arguments supported by evidences • More reasonable in the overall writing construction	• integrating useful ideas to improve writing • Becoming reasonable and flexible • Helping essay more organized • Finding the arguments faster • Analysing from more perspectives • Logic enhanced • Promoting self-awareness • More rigorous and clearer thinking • More fluent writing • More confident • More beautiful essay • Establishing clear framework • Improving writing structure • Gaining a lot of creative ideas

From the comparison in the above table 4.16, it was clear that students had some progresses in analyse perspectives and logic inference after the experimental teaching. Students were used to analyse one issue from

different perspectives and integrate the useful ideas into their writings. Students were able to get more arguments in a short time, supporting by persuasive evidences at the same time. Their writing structures was improved as well, becoming more reasonable organized.

Group discussion was an important teaching strategy the teacher took in the experimental teaching. The following table 4.17 showed the similar and different attitudes from both the teacher and students.

Table 4.17 Comparison the Opinions on Group Discussion from the Teacher's and Students' Perspectives		
Theme	Teacher's feedback	Students' feedback
Group Discussion	• Group discussion for collecting different ideas • Important step for preparing the writing task • Created an active and relax atmosphere • Stimulated students to think critically • Help students broaden their minds • Promoted their teamwork spirits	• Could combine different ideas together • Could share the burden • Could take many aspects into consideration • Could enhance collective honour • Be interesting to share something new • Could enhance friendship • Disrupt one's own thinking • Not good for self-presentation • Difficult to unify the ideas in a group • Could write coherently by oneself • Easier and quicker to do it alone

In the aspects of the effect of communication ideas in groups, both the teacher and students believed that group discussion could help students open their minds and collect various ideas, the relax communication atmosphere could promote cooperation and enhance their teamwork spirits. At the same time, there were some different opinions towards group discussion. The teacher emphasized that group discussion was an important preparation for writing and communication could stimulate students to think critically. After the experience of discussion in groups, some students found it was hard to unify the ideas in a group, discussion

just wasted their time and disrupted their own thinking, it would have been better if they had made use of the time to think independently.

Peer-evaluation was taken after students finished their drafts in the experimental teaching. The feedback about peer-evaluation from the teacher and students were compared in the following table 4.18.

Table 4.18 Comparison the Peer-evaluation from the Teacher's and Students' Perspectives

Theme	Teacher's feedback	Students' feedback
Peer-evaluation	• An effective way for students to communicate and learn from each other • Find different perspectives from others' writing and inspired their own thoughts • Draw some lessons from other's mistakes • Cultivate a good habit for self-checking	• Could reflect on oneself • A process of self-improvement • Comparing with others • Finding out shortcomings and making progresses • Better position oneself • Questioning one's own ideas

From the perspective of the teacher, peer-evaluation could promote students to learn from each other, draw some lessons from the mistakes and reflect on themselves. Similarly, the interviewed students expressed the same ideas as well, they regard peer-evaluation as a way for self-improvement. After reading other's writing, they could realize the problems and shortcomings in their own writing, which helped them

reflect on themselves.

It was found that the feedback was almost similar and even identical when talking about the performance of student' writing, the effect of group discussion and peer-evaluation. The differences of their opinions were out of their different perspectives, such as the teacher focused on the purpose of organizing group discussion and peer-evaluation, while the students talked about their own feelings during the activities and their inner changes after the experience. Both the similarities and the differences in their feedback proved that students' writing proficiency was improved after the experimental teaching, discussion in groups and evaluation between classmates were effective strategies necessary for critical writing teaching.

As a result, the research questions about the current status of students' English critical writing abilities, and the effective teaching measures were answered in the interviews from both the teacher and students, which offered some references and enlightenments for constructing a practical English critical writing teaching mode.

4.4 Relationship Between Critical Thinking Skills and English Writing Proficiency

In the present study the researcher desired to find out whether there was a significant correlation between writing ability and critical thinking skills. According to Stapleton's model of assessing critical writing (see the section 4.4.1), the results of students' writing tests would be presented in the subsection 4.4.2 to find out whether the students could apply critical analysis to the topics they would like to write about, and evaluate various viewpoints related to the themes in the course of their writings; whether critical writing could be integrated with the training of critical thinking

skills.

4.4.1 Marking and Description of Writing Scores

There were various measurements for the evaluation of critical writing, such as: the content corresponding to the theme of the task, the logical organization of the structure, the expression used to convey the ideas and the linguistic knowledge employed in the writing. The rater must adhere to the evaluation rubric and give reliable assessment.

(a) Stapleton's Model of Assessing Critical Writing

Stapleton (2001) established a critical writing rating model which attached great importance to evaluate critical thinking elements in argumentative writing. According to this model, the teacher could identify and assess the important critical elements presented in students' writing. The writing could be evaluated on the follow points: (1) the arguments' number; (2) the given evidence; (3) the identification of divergent opinions; (4) related refutations; and (5) the quantity of fallacies.

By the means of counting the critical elements in students' writing and comparing their scores in pre-test and post-test to find out the changes and the developments of their thinking and writing abilities in their articles.

An argument usually contains a reason supported claim. A claim comprises an arguable statement which is often put forwarded to respond to a question or debated subject. A claim is not an argument if there is not any supportive justification, it is just an opinion. Such expressions are often used for a claims as begin with "in my opinion" and "I think", or "we should" as a proposal.

Reasons are employed to back claims and usually persuade readers to

believe the claim, demonstrating a logical relation to the claim. In order to show critical thinking, reasons should be explained elaborately, and often identified by the expressions as: “for the reason that”, “since”, or “because”.

Evidence is used to support the argument, and it should be objective and representative. The example or data demonstrated as an evidence should be updated and reliable. Evidence could be based on research findings or personal experience, by the means of analogies and comparisons through statistical analysis, normally in the form of citing authorities, giving definition, listing facts, logical justifications or predicting consequences.

The identification of opposition is applied in giving responses to divergent viewpoints, and usually offers different explanations to indicate that the opposite viewpoints are deficient for the reason that there are some logical errors, flawed assumptions, inadequate support or mistaken principles in the contradictory perspectives.

Refutations ought to be rationally related to the opposite ideas and might present challenge reasons or results to supports the writer’s assumption. Opposite ideas or refutations are generally identified by the expression as: “in spite that”, “although”, “even if”, “however”, or “it is said that … but…”.

Fallacies are faults which exist when there are not adequate reasons to support the claim and there are some flawed links among the statements. The fallacies usually appeared as irrelevance, misleading comparison, hasty generalization and oversimplification. The fallacies often appeal to shift the readers’ attention, stir audience’s emotions and refute the opposite arguers.

Conclusions are a sequence of statements covering the viewpoints of the writer by the means of argument, evidence, or refutation. Conclusions are generally indicating the attitude of agreement, disagreement or neutralizing position, and are usually conveyed by expressions like “I agree”, “I oppose”, “I am not sure”, or words as “thus”, “hence”, “instead” or “consequently”. Sometime, conclusions might not be explicit, or straight forward, which would be left to readers for inference.

(b) The Critical Writing Assessment Scale in the Study

Based on Stapleton (2001), the critical writing standards in the present study include the following aspects:

(1) Content (30%): It demands the content to be consistent with the theme, profound with convincing arguments and enriched by evidences. It would be better if the students could express their viewpoints from unique perspectives, which might reflect their critical thought and could inspire deep thinking.

(2) Organization (30%): It requires the structure of the writing should be coherent, the logic should be clear, and the arguments and inferences are well organized and arranged. Transitions between sentences and paragraphs are natural and reasonable.

(3) Appropriateness (20%): It refers to the expression should be precise and accurate; the statements should be worded aptly. The idea expressed in the writing should be related to the subject, and the sentences should be acceptable.

(4) Language (20%): If requires the language should be expressed fluently and clearly, the sentences should abide by the grammar rules and the

words should be spelt correctly .

Table 4.19 Marking Criteria for Critical Writing

Content (30%)	Be coherent to the topic (10%)
	Be supported by persuasive arguments (10%)
	Be supplemented by evidences (10%)
Organization (30%)	Rational writing structure (10%)
	Logic arrangement (10%)
	Natural and reasonable transitions (10%)
Appropriateness (20%)	The expression should be accurate and correct (10%)
	The sentences should be acceptable (10%)
Language (20%)	Clear and fluent language expression (10%)
	Correct words spelling and grammatical sentences (10%)

From the above standard it was clear that the content, organization and appropriateness which related to critical thinking took up 80% of whole scores, while the part of language decreased to 20%. Teachers' assessment focused on the critical writing abilities.

4.4.2 Analysis of Relationship Between Critical Thinking Skills and English Writing Proficiency

Writing is an effective way to show critical thinking abilities, by the means of writing tests we could get to know whether the students could apply critical thinking skills into actual situations. Appropriate tasks were important to inspire students' writing and present their overall writing proficiency. In this study, two similar topics were employed as pre-test and post-test respectively to identify whether there were any changes in

their critical writing abilities. The topic of *How to Deal with Peer Pressure* was chosen in the pre-test and *Stressful Life for Kids* was the writing task in the post-test , which were not only the everyday topic usually discussed frequently, but also related to the theme of unit 3 “How can young people cope with this difficult time period-the odyssey years” in their textbook, therefore, students were familiar with the topics. Students were required to finish their writing in 45 minutes in both writing tests.

Two experienced teachers participated in coding and giving score to the students’ writings. The standards of coding and critical writing evaluation were discussed and practiced by samples several times before the tests until the agreements were reached. For the purpose of avoiding the subjectivity in scoring, the average score of the two teachers was the final score of each student.

The following are two examples of coding the critical thinking elements in students’ writings, more writing samples were attached in appendix 9. The black letters stand for different critical elements in their writings. In order to avoid the subjectivity as much as possible, the number of critical elements such as claim, evidence, conclusion or appeal in their articles were counted as the basis for scoring. At the same time, all the mistakes appeared in the writing such as spelling errors or grammar mistakes were counted as well, which would lead to deduct points accordingly.

C: claim **UC**: Unsupported Claim **O:** Opinion **R**: Reason **E**: evidence **CA**: counter-argument **IntC**: intermediate conclusion **FinC**: final conclusion **Con**: conclusion **App-aff**: Affective Appeal **App-cred**: Credibility Appeal **T:** Transition **Ref:** Refutations

C1/ Nowadays, some parents tend to expect too much from their children.

E1 / Children feel stressed but can't do anything about it.

T1/ There are various factors that have contributed to this phenomenon. **R1/** One of the most common causes is the harsh reality, with the development of science and technology, more and more jobs are being substituted by machines and there are few jobs but more people in the job market and many big companies require a high degree. **C2/** Another contributing cause is peer pressure, **E2/** for example, during an interview, one child said that his classmates knew at least one instrument, so he wanted to learn to play the piano. **E3/** According to a survey, as many as 80 percent of students attend after-school cram school, all the time is full of course**. IntC / ** Some parents think it is necessary if it's useful in the future. **C3/** Perhaps the primary factor is that parents' love for their kids, they hope children will have a great job in the future. **E4/**And some less-educated parents want their kids to read more books and go out to see more things that they haven't seen.

C4/ Lastly, in an environment where technology is changing rapidly, opportunities and challenges coexist. **App-aff /** To set reasonable expectations for the kids is not easy, but it is worth trying. **App-cred/** One day, the kids will find the best way for their future and even make a difference in some areas.

Table 4.20 Scoring Details for the High-Score Sample

Criteria	Requirements	Point	Score
Content (30%)	Be coherent to the topic (10%)	10	23
	Be supported by persuasive arguments (10%)	8	
	Be supplemented by evidences (10%)	5	
Organization (30%)	Rational writing structure (10%)	9	28
	Logic arrangement (10%)	10	
	Natural and reasonable transitions (10%)	9	
Appropriateness (20%)	The expression should be accurate and correct (10%)	9	18.5
	The sentences should be acceptable (10%)	9.5	
Language (20%)	Clear and fluent language expression (10%)	9.5	18.5
	Correct words spelling and grammatical sentences (10%)	9	
Total		88	88

The first article listed four different claims to express the writer's opinions and supported by four examples, two appealing at the end of essay confirmed the ideas of the writer. The whole article was logically arranged and the transitions between paragraphs were nature and fluent. All expressions in this article were easy to understand and there was basically no grammar error or spelling mistake. This article was regarded as an excellent writing with high-quality and given a high score by both teachers.

On the contrary, the next sample was an example for low-scored writing. Even though the content of the essay was cohered to the required topic, and ideas were supported by some evidences, the expressions were unclear and not fluent. The logical arrangement in the essay was poor and there was no transition word. A lot of errors were found such as incorrect collocation, confused expression, ungrammatical sentences and wrongly

spelled words which were underlined in the sample. As a result, the score given to this writing was low.

C1/ Some parents tend to expect too much from their children. **C2**/ I think the main of pressure is from their parents.

O1/ Nowadays, reading is regarded as a good way to find a job which is relaxed and get high wages. **C3**/ The harsh reality let's have to study hard and graduate with a high degree. **T1**/ Therefore, **IntC1**/ kids have many things to do, they have to time to play with others. **App-aff**/ When you are palying, other is studying you will feel pressure. **R1**/ Because you parents hope you can become better their will strict with their kids. **O2**/ They think is love for their kids.

CA/ Study is important but they can not study all day they also need relax and play with others. **App-aff /** So to set reasonable expectatoons for the kids is no easy, but is worth trying is better to them.

Table 4.21 Scoring Details for the Low-Score Sample

Criteria	Requirements	Point	Score
Content (30%)	Be coherent to the topic (10%)	10	16
	Be supported by persuasive arguments (10%)	4	
	Be supplemented by evidences (10%)	2	
Organization (30%)	Rational writing structure (10%)	7	20
	Logic arrangement (10%)	7	
	Natural and reasonable transitions (10%)	6	
Appropriateness (20%)	The expression should be accurate and correct (10%)	5.5	12
	The sentences should be acceptable (10%)	6.5	
Language (20%)	Clear and fluent language expression (10%)	6.5	13
	Correct words spelling and grammatical sentences (10%)	6.5	
Total		61	61

In order to find out the influence of experimental teaching to students' critical writing proficiency, the following sub-sections demonstrated the analysis of the writing tests results in both experimental class and control class, and the comparison of the two class in pre-test and post-test.

4.4.2.1 Result Analysis of Writing Tests in the Experimental Class

All of the 42 students in the experimental class took part in both the pre-test and the post-test of English writing. Chart 4.12 showed the distribution of the student's number in different score segments in the pre-test.

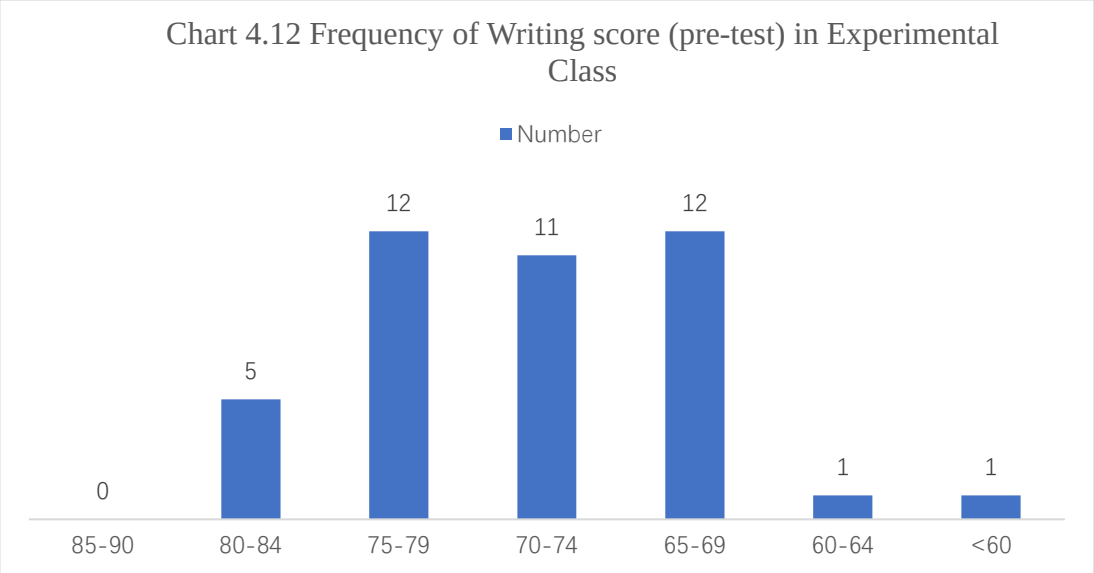
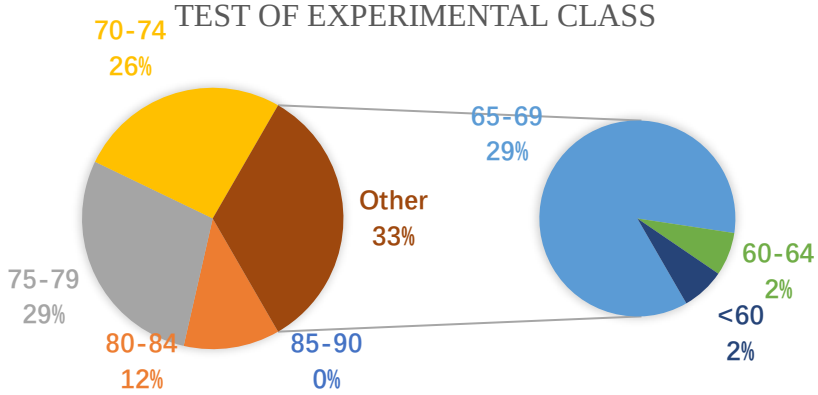


Chart 4.12 Frequency of Writing score (pre-test) in Experimental Class

There were 7 score segments between 60 to 90, and every 5 points increases to a new level. The number of students were scattered to different score segments in the pre-test. Most students' scores were between 65 to 75, among them 12 students belonged to the segment of 75-79, the same as 65-69, 11 students in the section of 70-74. There were 5 students above 80 but on one got the score more than 85. Two students didn't perform well in the pre-test, one student was just got score above 60 and the other one even had less than 60.

The next chart 4.13 showed the percentage of each cohort in different score segment. The students in the pre-test were divided into six score groups, two pies were used here for the much clearer demonstration.

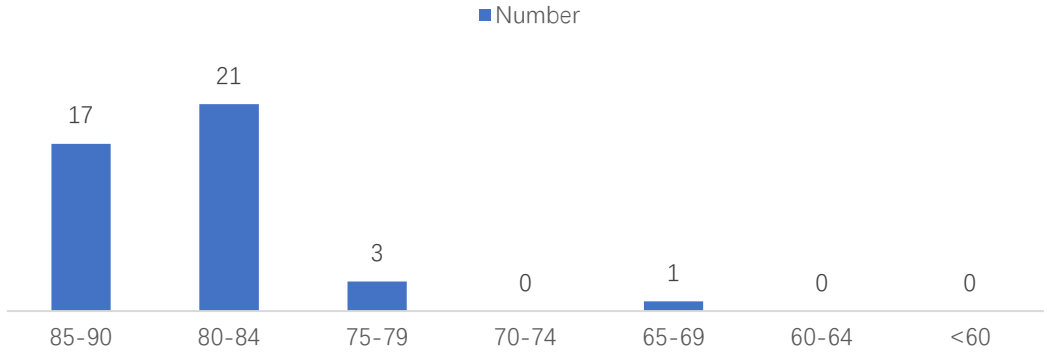
CHART 4.13 PERCENTAGE OF SCORE SEGMENTS IN PRE-TEST OF EXPERIMENTAL CLASS



There were 5 students getting more than 80 took 12% of the whole class. Both the 75-79 group and the 65-69 group took 29%, 70-74 group took 26%, the student in the 60-64 group and the student getting less than 60 took 2% respectively.

The same students in the experimental class took part in the post-test. The chart 4.14 showed the distribution of student numbers in different score segments.

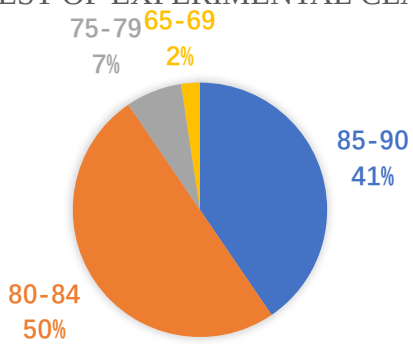
Chart 4.14 Frequency of Writing score (post-test) in Experimental Class



It was clear that the students became more concentrated to the higher level of score segments. The writing score of most students were above 80, especially the score ranged from 80 to 84, 21 students were in this score segment and 17 students had a rather high score above 85. There were 3 students got the score between 75 to 79, only one student got less than 70.

Students' scores were in four groups in the post-test, Chart 4.15 demonstrated the percentage of different score groups.

CHART 4.15 PERCENTAGE OF SCORE SEGMENTS IN POST-TEST OF EXPERIMENTAL CLASS



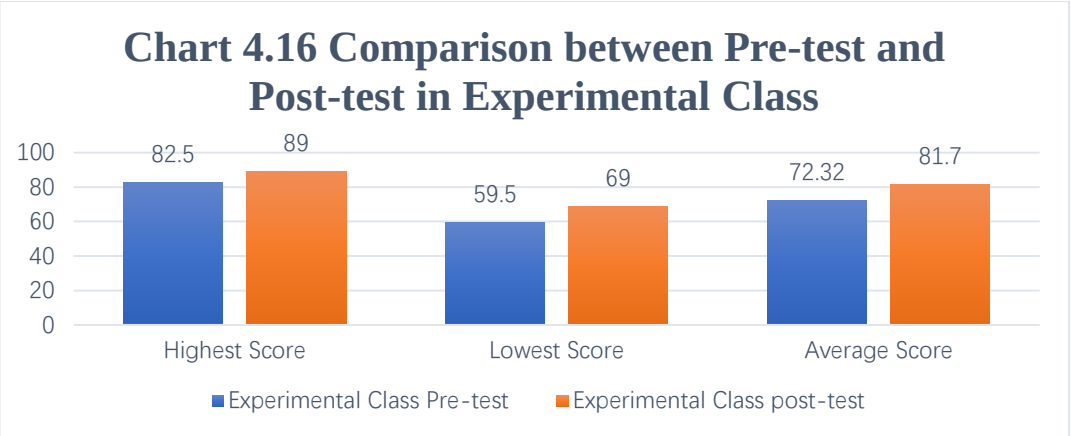
Half of the whole class got score between 80 to 84, and another 41 percent of the class got higher score between 85 to 90, the two groups together took up 91%. Only 9% of them below 80, among them 7% got the score between 75 to 79, and only 2% got less than 70.

Table 4.22 demonstrated the comparison between pre-test and post-test, including the change of students' number and percentage in each score group between the two tests.

Table 4.22 Comparison Between Pre-test and Post-test in Experimental Class						
Score	Pre-test		post-test		Difference	
Range	Number	Percentage	Number	Percentage	Number	Percentage
85-90	0	0%	17	41%	17	+41%
80-84	5	12%	21	50%	16	+38%
75-79	12	29%	3	7%	-9	-22%
70-74	11	26%	0	0%	-11	-26%
65-69	12	29%	1	2%	-11	-27%
60-64	1	2%	0	0%	-1	-2%
<60	1	2%	0	0%	-1	-2%

From comparing the data between pre-test and post-test, all the students in the experimental had made remarkable progress and promoted their score greatly. 17 students' scores were over 85 in the post-test while there was no one in the pre-test, the promotion was as high as 41%. At the same time, the students' percentage in the score range of 80-84 was increased by 38%, the number of students whose scores were above 80 was took up 91% in the post-test. Another outstanding progress was that there was only one students below 70 and there no students got the score less than 65. These excellent result was out of expectation, the familiarity to the topic might have a huge contribution because students had written a similar essay in the pre-test and had discussed the related theme in the experimental teaching, which proved that the critical writing teaching had positive influence on students' overall writing performance.

Chart 4.16 compared the highest scores, lowest scores and average scores in pre-test and post-test. The blue columns in the chart stand for the scores in pre-test and orange stands for post-test.



It was clear that all kinds of scores in the post-test were higher than pre-test, the highest score grew to 89 which was remarkable and close to the distinguished level; the lowest score grew from 59.5 which was below 60 (the passing mark) to 69, increased 9.5 points, from low level to middle level; the average score of the whole class was promoted accordingly from over 70 to over 80, which indicated that students' writing level was improved under the influence of experimental teaching.

Analysing from the four different criteria (see table 4.19), table 4.23 showed that the students' performance was promoted in all aspects compared with the results in the pre-test.

Table 4.23 Comparison Between Pre-test and Post-test in Each criteria (Experimental Class)

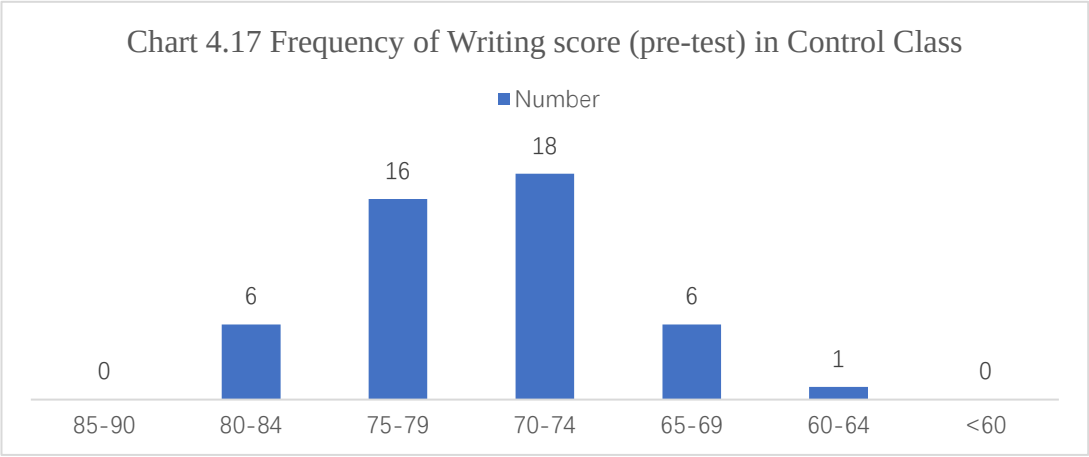
Criteria	Pre-test			Post-test			Difference In Average
	Highest	Lowest	Average	Highest	Lowest	Average	
Content	23	14	18.73	25	18	21.69	2.96
Organization	25	18	21.46	28	20.5	25.22	3.76
Appropriateness	17	14.5	16.57	18.5	16	17.73	1.16
Language	17.5	13	15.56	17.5	14.5	17.06	1.5
Total	82.5	59.5	72.32	89	69	81.7	9.38

The most outstanding change was the total highest score in the post-test was increased from 82.5 to 89, added 6.5 points; the lowest score

promoted from 59.5 to 69, increased by 9.5 points which was the greatest progress, and their average score enhanced from 72.32 to 81.7, improved by 9.38 point. From the table 4.19, it was clear that organization was increased the most, followed by content, language and appropriateness, which gave us the information that critical writing teaching had the best effect in the aspect of organization, more and more students became good at the arrangement of the writing structure and transition. The score in content also had a great increase in average, which meant that the students became much more aware of the importance of critical thinking in their writing, and there were more critical elements in their essays and employed more claims and evidences to support their opinions.

4.4.2.2 Result Analysis of Writing Tests in the Control Class

All the 47 students in the control class took part in the English writing pre-test. Chart 4.17 showed the distribution of the student's number in different score segments in the pre-test.

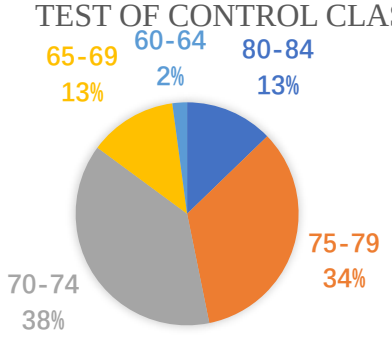


As the results showed in chart 4.18, most of the students' scores were between 70 to 79. 18 students belonged to the range of 70-74, 16 students were in the range of 75-79. There were both 6 students in the level of 80-84 and the range of 65-69 respectively. Only one student who got the

lowest score was in the range of 60-64.

Chart 4.18 demonstrated the percentage of different score groups in the pre-test. The students in the control class were divided into five score groups.

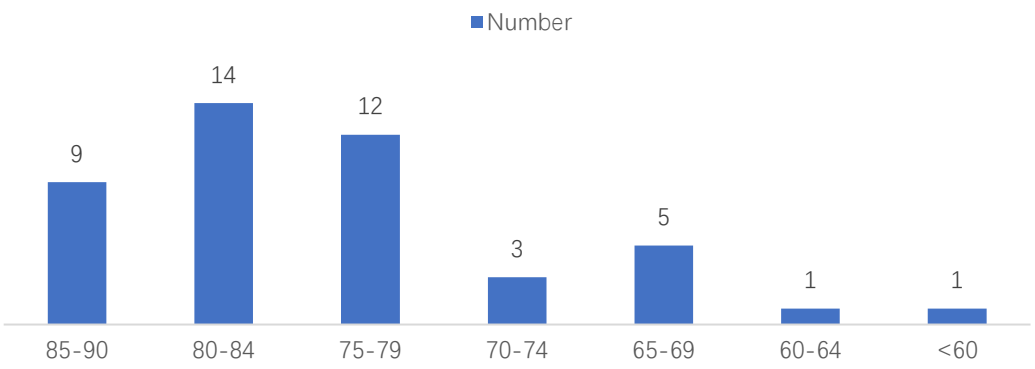
CHART 4.18 PERCENTAGE OF SCORE SEGMENTS IN PRE-TEST OF CONTROL CLASS



The largest score group in the pre-test was 70-74, which took 38% of the whole class. The next group was 75-79, taking 34%. Both the students in the groups of 80-84 and 65-69 were the same, taking 13%. And only 2% in the group of 60-64.

After one semester's learning, 45 students in the control class participated in the post-test. The result of their writing scores was indicated in chart 4.19.

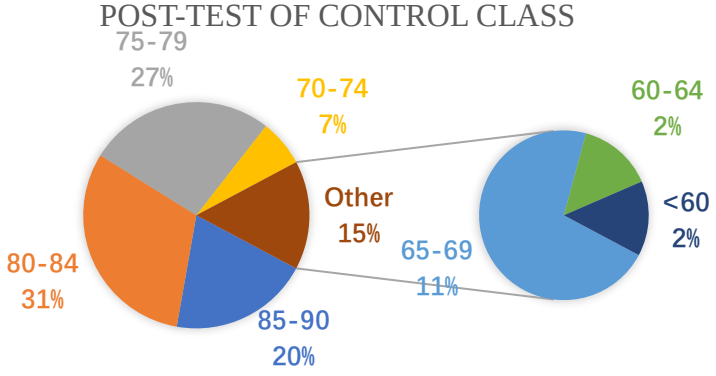
Chart 4.19 Frequency of Writing score (post-test) in Control Class



From chart 4.19, it was clear that the post-test's results were completely different from their pre-test. The number of students scattered in different score scales in the post-test. Most students' score was above 75, 9 of them came to the range of 85-90, which was a fantastic progress. 14 students got the score between 80 to 84. As a result, more than half of the whole class had the score more than 80, their English writing level moved to a higher level. Another 12 students were in the scale of 75-79, and the number of students in the range of 70-74 became much less. There were still 5 students in the scale of 65-69 and one student in the range of 60-65, basically the same as the pre-test. But there was one student performed poorly and got the score less than 60, which was unanticipated.

The next chart 4.20 showed the percentage of each cohort in different score segment. The students in the post-test were divided into seven score groups, for the much clearer demonstration, a big pie and a small pie were used here together.

CHART 4.20 PERCENTAGE OF SCORE SEGMENTS IN POST-TEST OF CONTROL CLASS



The largest group was the students got their scores between 80 to 84, taking up 31% of the whole class in the post-test, 75 to 79 group was the second one taking 27 %. There were 20 % students had their scores higher than 85, which was a great progress. The students in 70-74 cohort took 7%

and in 65-68 group was 11%. The least two were took 2% respectively.

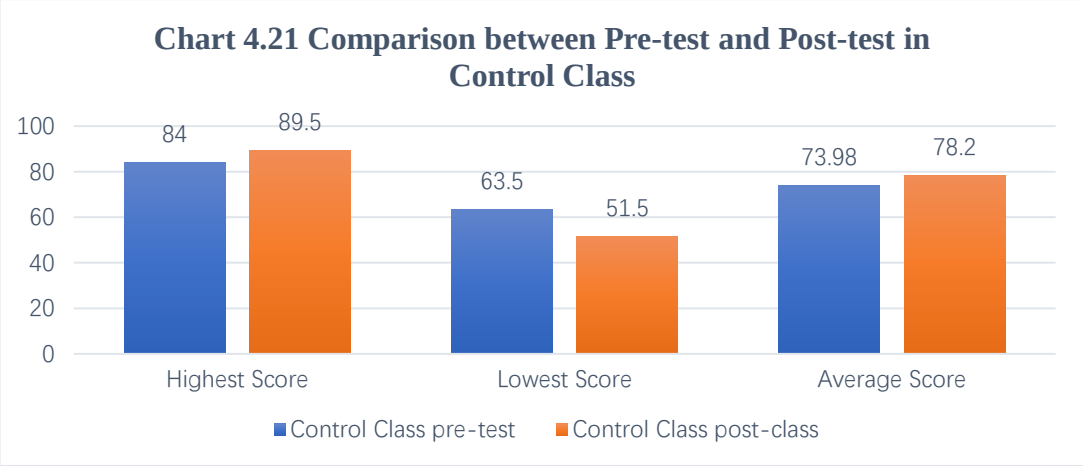
In order to show the changes between the results in the pre-test and post-test, the next table 4.24 compared the difference from the number of students in each score group and their percentage in the two tests.

Table 4.24 Comparison Between Pre-test and Post-test in Control Class

Score	Pre-test		post-test		Difference	
Range	Number	Percentage	Number	Percentage	Number	Percentage
85-90	0	0%	9	20%	9	+20%
80-84	6	13%	14	31%	8	+18%
75-79	16	34%	12	27%	-4	-7%
70-74	18	38%	3	7%	-15	-31%
65-69	6	13%	5	11%	-1	-2%
60-64	1	2%	1	2%	0	0%
<60	0	0%	1	2%	1	+2%

From the comparison in the table 4.24, it was found that the more students in higher score level and the number in lower score became much less. The most distinguished change took place in the score range from 70 to 74, the students' number decreased from 18 to 3, as much as 31% of the whole class. At the same time, the students' number increased 20% in the high level of 85-90 and 18% in the scale of 80-84. The results told us that students in the control class had made great progress in their writing level as well after learning.

The next chart 4.21 showed the difference of highest, lowest and average scores between the pre-test and post-test.



The highest score had a little increase from 84 to 89.5 which was really rather high score in English writing indicated an excellent proficiency. But the lowest score in the control class lowered from 63.5 to 51.5, which was quite awful performance in the post-test and the result was out of our anticipation. The average score was progressed from 73.98 to 78.2, which indicated that the English writing level of the whole class was improved to some degree.

Table 4.25 Comparison Between Pre-test and Post-test in Each Criteria (Control Class)

Criteria	Pre-test			Post-test			Difference in Average
	Highest	Lowest	Average	Highest	Lowest	Average	
Content	24	14	19.17	25	12	19.89	0.72
Organization	26	20.5	23.31	27.5	15	24.63	1.32
Appropriateness	17.5	15	16.87	18	12.5	19.02	2.15
Language	16.5	14	14.63	19	12	14.66	0.03
Total	84	63.5	73.98	89.5	51.5	78.2	4.22

As to the four aspects of the critical writing criteria, the table 4.25

indicated that students' performance in each scale had different growth in the post-test.

The average score in appropriateness promoted the most, which meant that students' expression in their writing become much more accurate and understandable. The scores in organization also had a great progress, which indicated that students had mastered some skills of writ structure and meaning transition. The scores in the scale of content had some kind of increase as well, which showed that students could give more evidences to support their arguments. The least growth was in the scale of language, which meant that the grammar and words spelling were always the difficult parts in students' writing and students should pay more attention to the basic language knowledge of English in order to get much more progress in their future writing.

4.4.2.3 Comparison between Experimental Class and Control Class in Writing

The table 4.26 compared the highest, lowest and average scores between writing pre-test and post-test in experimental class and control class respectively.

Table 4. 26 Comparison between Experimental Class and Control Class in Writing

Class	Experimental Class			Control Class		
Scores	**Pre-test**	**post-test**	**Difference**	**pre-test**	**post-class**	**Difference**
Highest Score	82.5	89	+6.5	84	89.5	+5.5
Lowest Score	59.5	69	+9.5	63.5	51.5	-12
Average Score	72.32	81.7	+9.38	73.98	78.2	+4.22

From the difference we could see that the experimental class had made greater increase in every aspects compared with the results in control class. The most remarkable increase was the average score of the experimental class, which increased as high as 9.38, while the increase in control class was 4.22. There was a more than 5 points difference between the two class, which revealed that students in the experimental class had made much greater improvement in their English critical writing ability than the control class.

From analysing the score of the students of the two classes in the pre-test and post-test respectively and comparing their changes after one semester' instruction, it was found that even if both experimental teaching and traditional teaching had helped the students to improve their English writing abilities, the students in the experimental class made much greater and obvious progress in both critical abilities and writing skills, their critical abilities and writing proficiency were positively related.

4.5 Major Findings

A series of comparison and analysis of the data in the present study showed that the experimental critical writing teaching for non-English majors was feasible and effective. The major findings in the following aspects answered the research questions in the study:

(1) The results of the CCTDI-CV revealed the current status of non-English majors' critical thinking disposition and the influence of the experimental teaching in their critical abilities. They were willing to accept various ideas and they would respect the one who had different opinions, but they were not good at dealing with the challenges systematically in a logical way. The experimental instruction helped more students to become much more mature and they became able to make

reasonable judgements in tricky settings. Compared with the pre-test, more students got higher score in the post-test, indicating that the students' critical thinking disposition had improved to some degree after the experiment teaching.

(2) The feedback of the interviews told us the current status of students' English writing. As non-English majors, vocabulary, grammar, expression and structure were the main obstacles in their writings. Many students found their vocabulary was inadequate, their writing structure was simple, and their thought couldn't be expressed clearly and correctly. Due to the influence of their mother tongue, there were too much Chinglish expressions in their writings. Some students even used the Chinese-English translation method in writing which did not conform to English grammar and expression habits. The teacher also found that most students were restricted by the Chinese thinking pattern in English writing and some Chinglish were too rigid to read.

(3) Both the students' feedback in their interviews and results of their writing tests indicated that there was a significant correlation between students' critical thinking abilities and their writing proficiency, and the two could promote each other and improve together. Lots of students reflected that critical writing teaching cultivated them the habit of collecting data from different perspectives and their critical thoughts were benefit for writing. After a semester's critical writing teaching, they became rational in reasoning and flexible in argument. From the results of their writing test, it was obvious that some students' writings were organized better in the post-test, more evidences to support their opinions and their creative ideas were inspired as well. More students became rigorous in thinking and confident in expression, their writings were improved from idea to structure.

4.6 Summary

This study adopted a college English writing teaching model that incorporated the cultivation of critical thinking ability to college English writing teaching and helped students improve their overall English writing level. The implementation of the new teaching mode required teachers to update their teaching ideas, improve their own thinking ability. Critical thinking skills could be cultivated in the process of writing teaching, at the same time, students should also be aware of the importance of critical thinking ability and apply critical abilities in their writing. In order to summarize the useful experiences and the pedagogical enlightenment in the experimental teaching, the next chapter would summarize the finding of the experimental teaching and conceive a concrete teaching mode for developing critical writing in English.

Chapter 5 Discussion of the Findings

5.1 Introduction

The present research conducted a study of teaching to explore the proposed research questions. The collected first-hand data from questionnaire, interviews and writing tests exposed the current critical thinking status of the non-English majors and their problems in English writing. The findings from the data analysis showed the relationship between critical thinking and English writing, providing the evidence about the effect of the critical writing teaching. Comparing the results with previous related studies, the findings of the present study would be discussed in the following subsections according to each research question respectively.

5.2 The Findings of the Current status of Non-English Majors' English Writing (RQ1)

There were 80% of the interviewed students in the study said that vocabulary was the main obstacle in their English writing (see section 4.3.1, table 4.11 in Chapter 4). The finding is consistent with the conclusion in the research taken by Pratiwi (2016), vocabulary was the most challenging part for students' second language writing. Vocabulary is the basic element of English writing, and the vocabulary mastery affects the quality of their writing directly. Students must have enough vocabulary to express their thoughts. The more vocabulary, the more content could be expressed. *The College English Level 4 and Level 6 Test Syllabus (Amendment) 2016* in China requires students master 4500~6000 words, but the actual situation was that most students felt that insufficient vocabulary was their main problem in English writing, and it was also an obstacle restricting their improvement in writing ability. Some students

said that when memorizing words, many of them only remembered the Chinese meaning of the words but ignored the context and fixed collocations, so that the words couldn't be formed into structured sentences correctly. At the same time, many students reflected that their vocabulary was inadequate, and even the known words were only at an elementary cognitive stage, knowing the word's meaning but not its usage, so the words were not grasped actually, easy to be forgotten, or unable to be applied in writing. Problems such as high repetition of basic vocabulary and many spelling errors often occurred in their writings. At present, most non-English majors write English for the purpose of coping with proficiency tests such as CET-4 and CET-6, postgraduate entrance examinations, or simply to complete the writing tasks assigned by the teacher. The misplacement of writing purpose and the issue with vocabulary comprehension directly leads to a series of writing difficulties.

There were 40% of the students mentioned grammar was their difficulties in English writing (see section 4.3.1, table 4.11 in Chapter 4). When they intend to express in some compound or complicated sentences, there were usually some tense confusions. They often mistook some phrase collocations in expression, and the transition in their writing was not nature enough (see section 4.3.1, in Chapter 4). These results were consistent with the findings in Lin (2014)' study, in which she found the problems of grammar constrained students to produce high-quality writings. The study participants in her study were high school students, the findings of her study and the present study indicated that grammar weakness was a common problem in both high school and college in China and affected students' English writing proficiency seriously.

The foundation of grammar determines the level of writing. Students have already learned English grammar in high school, they had a certain

grammar foundation before entering university. However, it was found that most students' grammar was weak and insufficient. Serious errors in word order, person, tense, subject-verb agreement, and compound sentences often occur in their writings. Some students found that their writings were composed of simple sentences and poor coherences, their thought couldn't be expressed clearly and correctly.

Due to the lack of a real and natural English context, a lot of students influenced and interfered by their mother tongue, their English thinking patterns were extremely limited. Non-English majors were largely affected and restricted by the Chinese thinking pattern in English writing. 40% of the interviewed students emphasized that they lacked creative ideas in writing. Some of them employed the Chinese-English translation method in writing which did not conform to English grammar and expression habits (see section 4.3.1, table 4.11 in Chapter 4). The Chinese thinking mode had a negative transfer effect on their writing, which led to problems such as ambiguity inconsistent words, poor coherence, confused structure, illogic expression and obvious traces of "Chinglish" in their writings. Comparing Chinese and English, the two different language are belonged to different language families. All logical relations need to be connected by specific conjunction in English while Chinese like to use of short sentences and seldom use conjunction. A good article needs not only clear sentences, but also clear logic. Most students directly copy the word order of Chinese sentences into English sentences in writing, mechanically applied Chinese language rules and habits, regardless of English expression habits, which led to Chinglish in their writing. Sometimes students even make use of the translation websites such as Google Translate in the process of writing, which leads to a lot of unclear sentences with grammatic mistakes and confusing structures. Some of

them became dependent on machine translation in English writing and do not like to think by themselves, which had negative influences on both their writing skills and thinking abilities at the same time .

Affected by the exams of CET-4 and CET-6, most English teachers pay too much attention to the cultivation of reading ability and neglect the improvement of English writing ability, resulting in the squeeze of English writing teaching time. Students use mechanical memorization, students only improve their test-taking skills, but not their language ability and thinking skills. The language ability has not been substantively improved, and their writing ability has stalled. Therefore, a new writing teaching mode is the key and necessary means to cultivate students' critical thinking ability and improve their writing ability.

5.3 The Findings of the Current status of Non-English Majors' Critical Thinking Disposition (RQ2)

In the interviews, most of the students expressed that they supported various kinds of cooperation, because teamwork could bring different ideas together and they could learn to analyse the same topic from multiple perspectives. After group cooperation, their opinions enriched a lot and their friendship enhance at the same time. Everyone in the team felt relaxed when sharing the task together (see section 4.3.1, table 4.12). This kind of feedback was similar to the findings in studies by Lin (2014), Sharadgah (2014) and Rahmat (2019), from analysing the answers to the open-ended questions and their performance in their writing tasks, the results in the previous research highlighted the discussing in class could inspire students' ideas and expand their thoughts, which would help them to explain their arguments from various aspects in writing accordingly.

Because of the exam-oriented education, students in China were used to

listening to the teacher in class, and seldom discussed problems with others in a group. The students experienced group cooperation, peer evaluation and self-assessment during the experiment teaching in the present study, from their answers to the questions in the interview, there were different opinions towards group discussion because of various personal experience (see table 4.12 in Chapter 4). It was obvious that there were some problems in the practice of group cooperation, such as students' participation was uneven. Sometimes only a few active students participated in discussion and study tasks, the other students in the group seldom took part in the activities. During group discussions and reporting, students with good English foundations or outgoing personalities contributed frequently, while others just sat there listening. It did not realize the requirements of cooperative study. At the same time, many students expected the teacher to take comprehensive care of all of them, but there were more than 40 students in the experimental class, about 8 students in one group and there were 5 groups in all. The teacher was hard to observe all the students comprehensively during the cooperation, and it was difficult for the teacher to guide every student in the group activities each time.

As the responses in the interviews showed that there were great differences in students' various abilities. Some students were quick-thinking and had strong language expression skills, while some were slower and weaker in English expression. Some students had a better English foundation, while some students' English was poor (see section 4.3.1 in Chapter 4). According to the study of Chen (2020), the teacher should consider several factors in grouping, such as gender, personality, hobbies and learning ability. Students of different kinds should be distributed into each group in balance and avoid enormous gap between

groups. The different characteristics of group members are the basis of group cooperation, students could learn and inspire with each other in various activities. The teacher should make use of the strategy of group cooperation and the incentive evaluation scientifically to give full play of the advantages of group cooperation effectively and avoid the side-effects as well.

The results of both classes in the adapted CCTDI-CV showed that most students got the average score from 2.5 to 3 (see table 4.2 and table 4.6 in Chapter 4), which means that most non-English majors critical disposition belong to the middle level and only several students got very high or extremely low critical disposition. From comparing the results of the adapted CCTDI-CV in both pre-test and post-test between the experimental class and the control class, the change of students' number in different score range and the change of average score in different sub-scale showed that after the experimental teaching, more students in experimental class developed their critical thinking disposition, particularly in the aspects of truth-seeking, open-mindedness and analytical ability (see table 4.5 in chapter 4).

The outcome was in consistent with the result of Wang Xu (2015)' study, which was a similar research took placed in a university located in the north of China. Half of the tested students in his study had moderate critical thinking level, the same as the assessed students in the university (located in the middle-south of China) involved in the present study. From the results of the questionnaires, both students in the two studies showed great abilities in truth-seeking and open-mindedness, which shows that students have eagerness to explore the truth and are willing to accept different opinions, they are open to various opinions and have tolerant attitude to the diverse world.

The most evident difference of the two research results was that the students in Wang Xu's study showed strong ability in systematicity, but the systematic ability was the weakest one among all the critical scales in present study. This phenomenon indicated that students in Wang Xu's study were good at reconstructing information systematically while students in the university of the present study were poor in focusing on the logic of solving complicated problems, which was the great difference in the critical ability of different areas in China. This results suggest that we should get to know the character of different students before making teaching plan and choosing appropriate teaching materials, carry out teaching according to the characteristics of students and adjust teaching measures in accordance with their aptitude.

5.4 The Findings of the Relationship between Critical Thinking Ability and English Writing Ability (RQ3)

Writing is an important embodiment of students' thinking ability and comprehensive expression competence. However, due to the long-term existence of exam-oriented education and the training under traditional teaching model in China, the development of students' critical thinking is relatively limited, and the critical ability for non-English majors should be paid attention in college English education. It is found that most students' English articles in the pre-test were empty in content, lacking creative ideas, and logically confused (see table 4.23 in Chapter 4), which is in line with the findings in the study of Maznun et al. (2017), reflecting that the lack of critical thinking ability is a prominent problem in second language writing.

Students' learning is severely restricted by traditional learning from overall perspectives, and the inherent cultural traditions directly affect the development of students' learning habits. Chinese students rarely question

the knowledge taught by the teacher, and almost obey the teacher completely. Because students are accustomed to the passive intake of knowledge, they lose the ability to discriminate the knowledge, like to follow other's thinking. Students are not being encouraged to become independent learners in traditional teaching, which lead them would prefer copying to thinking. In the writing process, students like to recite the so-called "universal sentence pattern" or "writing template", which leads to students tend to pay attention to the writing form and ignore the content of the article. It is difficult to jump out of the inherent writing routines and they rarely write after fully consideration. These learning behaviours severely limit the development of students' innovative and critical thinking ability.

In the present study, the experimental class had made greater increase in the post-test compared with the results of the control class (see table 4.26 in Chapter 4), which revealed that the experimental teaching had a positive influence on their critical thinking ability and their English writing competence. The result was similar to the findings of Sinaga and Feranie (2017), who took a similar experimental research Indonesia University of Education, the experimental class got a higher average score than the control class in the post writing test and there was a direct connection between critical thinking skills and English writing quality. The findings showed that the critical writing teaching could promote students' critical writing abilities effectively, and students could develop their writing skills and critical thinking abilities at the same time.

Through a semester of experimental teaching that combined critical thinking with English writing, students' writing level and critical thinking ability had improved at the same time. The improvement of the content in students' English writing was greater than the improvement of knowledge

(see table 4.23 in Chapter 4). The English writing content became much richer, the logical relationship was much clearer, and the language expression was clearer, instead of just pursuing the correct usage of words and grammar. The overall critical writing ability has been improved, and they were willing to take critical thinking. They were able to analyse their own opinions and others' views in detail and make reasonable inferences and evaluations (see table 4.13 in Chapter 4). The findings were in line with the results of Gibson's (2012) and Lin's (2014) studies which proved that critical thinking teaching in L2 writing could promote students' critical abilities and improve their English writing competences. All these outcomes confirmed the significant effectiveness of the critical teaching method on both students' thinking and writing abilities in spite of their various cultural and educational background.

5.5 The Findings of How Can Teachers Improve Students' English Writing Ability Through Critical Teaching (RQ4)

Writing teaching is an important part of English teaching, it can reflect the students' English comprehension application ability. However, it is found that the teaching of writing in many colleges and universities has not been paid enough attention in the actual English teaching in China. In the curriculum system, teaching of writing is not listed as a separate professional course. Compared with intensive reading, English listening and speaking, writing is arranged relatively less time in college English education. At present, the college English classes in most universities are mainly based on intensive reading, teachers' lectures occupy a lot of classroom time, and the writing time is lessened too much. English writing as a part of college English teaching, there is not systematic writing teaching plans for teachers. Most teachers can only instruct writing-related knowledge within the limited hours of college English comprehensive

courses, cannot systematically sort out writing theories and help students improve writing skills. The template-style teaching directly leads to writing teaching neglect theoretical basis, emphasize text and neglect content. The entire teaching atmosphere is boring, which cannot give full play to the students' subjective initiative.

The number of students in each class would usually be more than 40. It is difficult for teachers to fully grasp the situation of each students in the class, and there is a lack of necessary communication between teachers and students. The opportunities for students to practice writing are greatly reduced, resulting in a lack of overall cognition of the whole writing process. The large number of students makes it difficult to implement face-to-face communication between every student and the teacher, which leads students to focus only on language errors and writing scores but ignores the improvement of writing ability. Teachers often emphasize the writing form but neglect the content, pay more attention to language knowledge but little to thinking skills. There is too much language training in traditional writing teaching and teachers often emphasis on memorizing words, sentence patterns, templates and sample essays, while there are too few discussions that can really promote students' thinking. These teaching methods hinder students' innovation ability and critical thinking ability, resulting in too many essays similar to the model and lacking deep thinking and logic in their writings.

Usually, the test is the baton for both teachers' instruction and students' learning, the writing teaching is bound to be affected by the English test. Under the influence of the traditional English writing pedagogy, the teachers always pay too much attention to the results of students' English writing and neglect the writing process. The evaluation of students' writing is limited to the language level. Due to the pressure of the exam,

students often memorize some composition templates before the exam, and even directly copy them in the exam, which makes it difficult to form their own opinions. In the process of traditional English writing teaching, teachers are accustomed to using summative evaluation. When reviewing students' compositions, they often focus on the accuracy of language expression and ignore the logic and depth of the article's content. Under the effect of this evaluation model, students only pay attention to whether the language is used accurately and properly in writing and ignore the deep ideological expression of the article. Therefore, traditional evaluation methods hinder the improvement of students' innovative and critical ability to a certain extent.

The results of the experimental teaching proved that the cultivation of students' critical thinking ability could be well integrated with students' English writing. The results were consistent with the findings of Wang Caiying and Li Rongbao' research in a university of Fujian in 2015 and Qi Jiaming and Zhu Sha's study in 2018 in a university of Nanjing in 2018 (see section 2.3.2 in chapter 2). In the experimental instruction, various writing skills were introduced in line with reading technologies in analysis of the texts in each unit (see table 3.4 in section 3.11, Chapter 3). Students were required to discuss in small groups and collect information collaboratively before each writing projects (see section 3.11.2 in Chapter 4). As Facione's (2000) claimed that critical thinking training could increase the occasions for students to practise related abilities, critical writing tasks provided the chance to practice students both thinking abilities and writing skills simultaneously. In order to complete their writing tasks as required, students had to think about the topic from multiple perspectives which promoting their critical think ability in real practice. It was found that even though the critical writing tasks were

challenging to the students, they would stimulate them to think critically. Students could learn the skills of cooperation and interaction in the course of completing the critical writing tasks, inspiring and learning from each other as well. Because of the challenging students faced in their writing tasks, they would do much more efforts to cope with them which would have a positive effect on their cognition development. During the course of dealing with the tasks, they became much more motivated and inspired. In order to motivate students to perform better, the topics and requirements should be compatible with students' linguistic abilities and cognitive levels. In spite of the cognitive challenging, the critical writing tasks should be designed manageable and inspiring. Considerate thinking should be required, and critical discussion could promote cooperation and interaction.

5.6 Summary

Many students have studied English for many years, and even after passing the CET-4 and CET-6, they still cannot write standard and authentic English sentences or a fluent and decent English essay. This situation is not uncommon in China, which is largely related to the traditional writing teaching method. This mode ignores a series of subjective actions such as interaction, negotiation, and monitoring in the whole process of writing. Students are extremely passively involved in the entire writing process, lacking writing motivation and true communication purpose, which lead to their limited writing ability.

The data from questionnaire, interviews and writing tests provided the evidences that the instruction of critical writing was beneficial for developing students' critical disposition and promoting their writing skills in English expression. Some students found they became much more logical in reasoning, and they would try to analyse the same phenomenon

from different aspects in a logical way. The development in their thinking habits confirmed that students became self-aware about their own critical thinking abilities, and they became more creative and confident in coping with the tasks for critical writing. Many students became much mature in the encouraging environments in which various opinions were desired, they learnt to respect other's ideas and support with each other. The process of learning from each other helped them gain much more self-awareness and realized their own shortcomings. They became more tolerant to different viewpoints than before. After critical thinking, they were able to integrate the useful ideas in their writing task and made their writing more persuasive (see table 4.16 in chapter 4).

All in all, the lack of the cultivation of students' critical thinking in the college students' English writing teaching results in the students' English writing level is not optimistic in China. In addition to language-level errors that are affected by language knowledge in students' English writing, such as vocabulary, grammar, sentence patterns, etc., there are more problems at the textual level, such as vague ideas, unclear opinions and arguments, unreasonable structure, and poor logic, etc. The reason is that students are not familiar with critical thinking in the writing process. It is very important to explore a new teaching mode to cultivate students' critical thinking through college English writing education. In the next chapter, the experiences in the experimental teaching will be summarised and discuss the concrete details of constructing an effective critical writing teaching mode.

Chapter 6 Discussion of the Pedagogical Implications

6.1 Introduction

Critical thinking can stimulate students' motivation, and ultimately promote the improvement of their writing skills and writing level (see section 5.4 in chapter5). Therefore, it is necessary to cultivate students' critical thinking ability in the process of English writing teaching. The findings of this study relate to and build on the earlier work of Stapleton (2001), Paul and Elder (2002), Hansen and Salemi (2012), Wen Qiufang and Liu Runqing (2006), Yu Jiying (2014) and Qi Jiaming and Zhu Sha (2018) (see section 2.3 and section 2.4 in chapter 2). Based on the discoveries in the experimental teaching in the study (see section 5.5 in chapter 5), the next subsections focus on the pedagogical implications of those findings, such as: the goal of thinking ability training in English writing course and the theoretical basis for critical English writing mode; discuss the fusion of critical thinking and the teaching of English writing in detail; deliberate on the English writing assessment scale incorporating critical thinking and the critical thinking competence training through writing tasks.

6.2 The Goal of Thinking Ability Training in English Writing Course

As an important part of the English writing course reform, the thinking ability as a learning objective should be included explicitly in the curriculum design. Only when the development of critical thinking ability is clearly incorporated into the teaching objectives could it be ensured to be realized through teaching. Paul and Elder (2007) had set the learning goals of critical thinking skills in writing courses. In their learning goals, both writing and thinking are emphasized, covering a series of indicators that teachers can directly evaluate and measure students' behaviour.

Through these goals, teachers can determine the mastery of a specific ability, which had a certain reference value for formulating the teaching goals of English writing courses in China. Based on the actual characteristics of the English writing courses, the critical writing teaching goals in this study were modified from the goals put forward by Paul and Elder (2007). Critical writing standards were taken to assess writing, analytical skills and logical illustration were the key goals of critical writing teaching. The critical writing teaching goals included the following aspects:

Table 6.1 Adaptation of Paul-Elder Critical Writing Teaching Goals
1. Students could put forward questions, analyse and solve problems before writing.
2. Students can demonstrate the ability to explain and illustrate in writing.
3. Students could demonstrate analytical skills in writing.
4. Students can use personal experiences as arguments.
5. Students could relate to the reality and write practically.
6. Students could clarify the logical relationship of each part in writing.
7. Students have the ability to summarize in written English.
8. Students could use critical writing standards to review their own writings.
9. Students could reflect themselves while writing and develop the habit of revision.

A key finding of this study is that the teaching objectives of critical writing could provide a reference frame for guiding and measuring the development of students' thinking ability in the writing course, and point out the direction of writing intervention, which are the foundation for the reform of writing teaching content and teaching methods. The implication of this finding is then discussed in the following section of the chapter.

6.3 The Construction of the Teaching Mode for Critical English Writing

Writing is the carrier of thinking, which is because thinking is abstract, and individual thinking needs language to be understood by others. Compared with oral language, writing can express thinking more accurately and effectively. Writers can reflect, regulate and optimize when writing, so that writing can express the thinking better (Marzulina, 2018, pp.63-75). Writing is not simply the act of recording what you see, what you read, and what you feel in words, but the process of expressing thoughts and conveying emotions with words.

The critical thinking abilities involving seeking truth, open thinking, analytical reasoning, systematic inference, self-confidence, curiosity and maturity, which reflect the attitudes and thinking abilities of an ideal critical thinker (Facione et al. 2000, p.74). To achieve the purpose of cultivating students' critical thinking tendency, some optimized teaching activities of critical writing teaching should be proposed, which could strengthen the cultivation of critical thinking ability in the teaching process. Based on findings in chapter 5 the following section of the chapter discusses how an English writing teaching model incorporating critical thinking training is constructed.

6.3.1 An English Writing Teaching Model Integrating Critical Thinking Training

The teaching model consists of four parts: firstly, setting teaching goals and designing teaching plan; secondly, carrying out corresponding learning activities according to the teaching plan; next, completing the learning tasks to realize the teaching goals; finally, cultivating students' critical thinking ability and promoting their English writing skills. The

procedure of the whole writing teaching mode could be divided into three links: pre-writing, during writing and post-writing.

Writing is based on a specific situation to achieve a certain purpose. Therefore, in the pre-writing part of this teaching model, the teacher could set up a real writing situation for the students to trigger their thinking about the purpose of writing. Related resources would be provided to help students learn the structure and writing language of different genres in the pre-writing period.

In the writing process, students should make writing plans, organize language and structure, complete the first draft. In the post-writing period, students need to revise the first draft. In this teaching mode, students will finally finish the article after the process of evaluation, revision and improvement for many times. In order to incorporate critical thinking training in the writing teaching process, this teaching model refines and optimizes the teaching activities based on the connotation of critical thinking, so as to realize the cultivation of students' critical thinking tendency.

The following three procedures were identified in my research. These are based on the earlier work of Hansen and Salemi (2012), Yu Jiying (2014) and Qi Jiaming and Zhu Sha (2018) (see section 2.3 and section 2.4 in chapter 2). Research on the experience of experimental teaching is summarised in section 3.11.2. The findings of the experimental teaching are reported in in chapter 5. The pedagogical implications of each of the three procedures, for the teaching model, are now discussed.

(1) Pre-writing period

Before teaching a genre of writing, teachers should collect relevant

knowledge of the genre and prepare a typical model essay of the genre. Subsequently, the teacher creates a relatively real writing situation around the social function of the genre and the purpose of writing. The real writing situation can guide students to make preliminary assumptions about the writing and stimulate students to take the initiative to understand the relevant knowledge of the genre, collect relevant writing resources, so as to achieve the purpose of cultivating students' curiosity.

In writing teaching, teachers should provide students with sufficient number of typical model essays with the characteristics of the genre and set reading tasks and discussion questions to trigger students to obtain and analyse information about the function, structure, and language of the genre. Students read the sample essays and form an initial understanding of the genre-related knowledge after analysis and discussion. This teaching activity would train students' ability of analysis and subtle reasoning. After the students have formed a preliminary understanding of the relevant knowledge of the genre, the teacher will ask the students questions in heuristic manner and guide them to establish an objective attitude, re-examine and reflect on their own knowledge, and build a correct and complete knowledge system. This teaching activity could help students establish an attitude of seeking truth.

The teacher could provide a writing topic close to the students' life around the writing theme and put forward discussion questions related to the topic (see section 4.3.2, in chapter 4). Students analyse the writing topic, broaden their thinking, and express their own attitudes to the discussion issues, express their own opinions and analyse the opinions of others carefully, and add some supplementary or different opinions. Since the teaching activity is an open activity, students need to open their minds,

express their ideas, at the same time judge and analyse the opinions of others, and enhance their awareness of their own thoughts. Therefore, the teaching activities can reflect the cultivation of students' open thinking and confidence.

(2) In the middle of writing

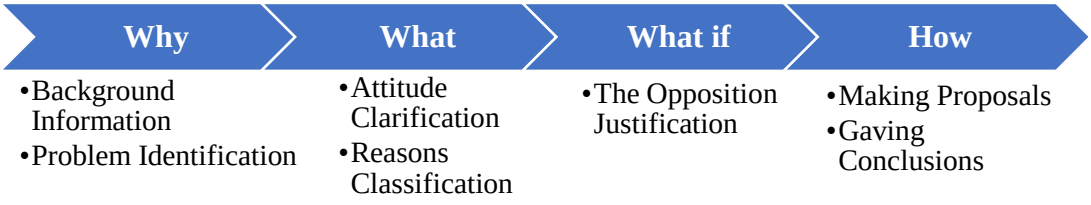
Through the above teaching procedure, students not only could open up their ideas on writing topics, but also accumulate language materials. In the process of completing writing tasks, students would carry out cognitive activities such as analysis, reasoning, evaluation, and creation actively. Their critical thinking skills could be trained and cultivated, and their critical thinking skills could be improved, which would affect the students' writing practice directly, helping them to clarify their writing ideas and make choices and judgments between various arguments, arrange a reasonable layout of the text, and enrich the content of the article creatively. Combined with the constructed genre knowledge, students could make a writing plan, clarify the writing structure, organize the language reasonably, solve the problems encountered in the writing, and finally complete their first draft. This writing process embodies the training of students' systematic ability.

In the process of critical writing, the most employed cognitive skills would be involved analysis, reasoning, justification and evaluation. Every practical problem is rooted in a special context with its origins and development, there must be a view collision from multiple perspectives for a controversial issue. In critical writing, students should not only focus on their own opinions and provide arguments and evidences for them, but also think about the views of the opposing part and their supporting reasons, so that students could find the breakthrough point to make a

response for refutation.

Such writing process is a kind of dialectical approach and analyse the two sides of one issue from comparison, evaluation and reflection. Only in this way can the article have sufficient demonstration process and make judgment on the premise of sufficient supporting evidences, and the article would have strong persuasiveness. Critical thinking should run through the entire writing process and is particularly important in the stage of conception and argumentation. Based on the characteristics of critical writing, a framework for critical writing is summarized in the following figure.

Figure 6.1 The Framework of Critical Writing



(3) Post-writing period

According to Yu (2014), timely feedback to students' writing after finishing their writing could have a better effect on promoting their language development (Yu, 2014, p26). Normally, there would be multiple drafts before completing the task, which generally includes the first draft, revision according to peer review to complete the second draft, and modification based on the teacher's comments to complete the third draft. According to the experience in the experimental teaching, students could get feedback from their peers or teachers in time after each draft, and make self-modifications based on the given feedback to form a final draft in the end (see table 4.12 in chapter 4).

The most importance of peer evaluation is to tell students how to evaluate, especially the approaches of giving helpful comments and suggestions. In addition to emphasizing positive attitudes to make assessment seriously, teachers should give clear guidance on assessment standards. Generally speaking, teachers could ask students to evaluate and feedback from the content, the structure and the use of language (see table 4.19 in chapter 4). The teacher should guide students to evaluate from the overall framework and layout of the article; at the same time, the teacher should guide students to pay attention to the diversity and appropriateness of vocabulary and sentence patterns at the level of language use.

In order to guide students to evaluate writing content effectively, the teacher could introduce specific content evaluation standards according to the type of writing task. For example, for the content of analytical writing tasks, different levels can be given from the dimensions of the relevance and the clarity of the argument, the logic of reasoning, and the coherence of the text. Students could make judgments according to the specific standards and give helpful suggestions for amendments. After the peer evaluation, the students should propose a revision plan based on the opinions and suggestions from the peer evaluation and complete the revised draft.

The teacher's evaluation and feedback play a scaffolding role in critical writing teaching, so the teacher's comments must be clear and specific, not only to point out the problem sharply, but also to play a positive role in strengthening the writing strategies. In the actual writing teaching practice, teacher could give feedback through various forms such as comments in class, communication after class, and network interaction. The teacher's comments in class should be mainly aimed at students'

common errors, including problems in language and text structure; the presentation of students' writings in the class should focus on encouragement and reinforce the writing strategy by affirming the shining points in their works. For students with a low level of critical English writing, they can conduct face-to-face guidance after class, and point out the problems in writing patiently.

In addition, the teacher can also use network such as Picai.com (http://www. pigai.org/) to strengthen interaction with students, give timely feedback to students' questions in the writing process, and use feedback to promote students' attention on the writing tasks (see section 3.3.4 in chapter 3). In the process of critical writing practice, the students could revise again according to the suggestions from the teacher and complete their final drafts.

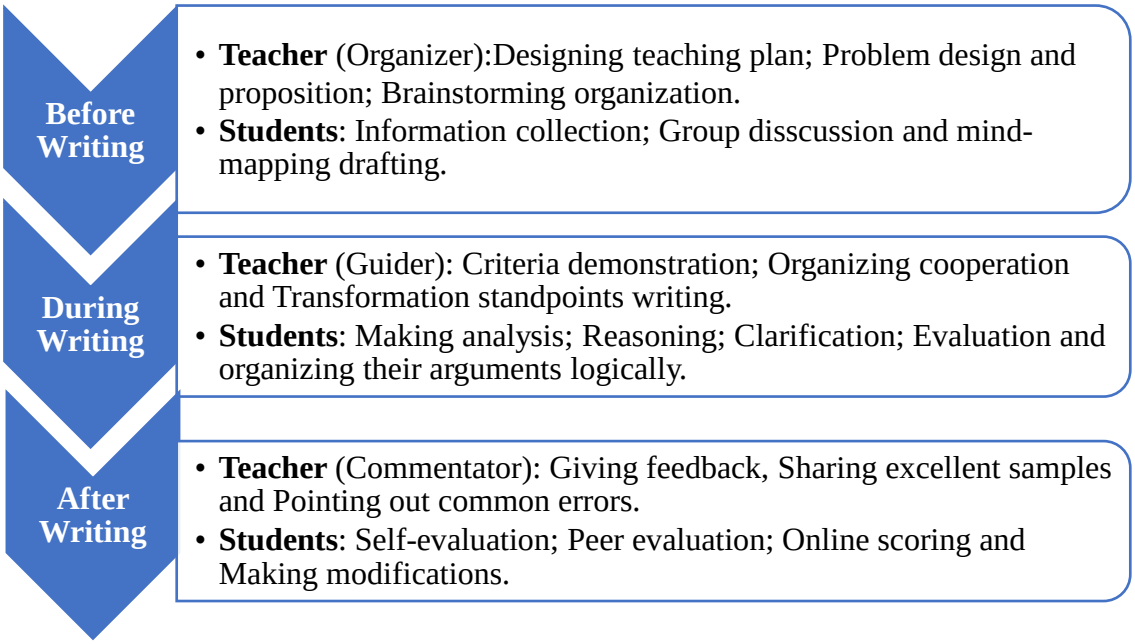


Figure 6.2 Simplified Critical Writing Teaching Model

From the feedback in the interviews with both the teacher and students in the experimental teaching (see section 4.3 in chapter 4), it was found that

a series of interactions between students in the process of peer evaluation, including discussion and analysis, putting forward suggestions, and making revision plans, could trigger students' reflection on the writing evaluation standards and strengthen their understanding of a good composition' s standards. Moreover, peer evaluation creates a relatively free learning environment, which can help students form critical study habits and promote their critical thinking skills. The previous discussion has emphasised the three stages and procedures of critical writing. These findings offer a distinctive contribution to research on critical writing teaching and build on the work of Paul and Elder (2002), Hansen and Salemi (2012), Wen Qiufang and Liu Runqing (2006), Yu Jiying (2014) and Qi Jiaming and Zhu Sha (2018). The empirical study proved that the proposed critical writing teaching model was applicable to non-English majors' English education, and benefit for promoting students' critical thinking awareness and their writing skills (see section 5.5, in chapter 5).

By integrating the cultivation of critical thinking ability into college English writing teaching, the depth and breadth of students' thinking could be greatly expanded, the ideological and readability of writing could be greatly promoted, and the writing level of students could be comprehensively improved. At the same time, the critical writing teaching would stimulate students' interest in writing, making them more actively participate in writing training, which would improve language expression ability in practice constantly, and achieve the goal of both training language skills and cultivating thinking ability (see table 4.16 in chapter 4).

6.3.2 The English Writing Assessment Scale Incorporating Critical Thinking

Xie Changxiang and Zeng Yongqiang (2009) took embedded scoring standards in their study, they argued that strengthening students' understanding of the examiners' intention could meet the writing requirements and make the English writing test more effective (Xie and Zeng, 2009, pp.118-121). Han Jingfeng (2014) researched the TEM4 writing scoring standards in China from the perspective of students' writing ability. He explained the importance of students' critical ability in writing and proposed that writing teaching should be strengthened in combination with the application of students' thinking ability in English writing so as to improve students' language cognitive ability (Han Jingfeng, 2014, pp.118-121). In Chapter 4 , section 4.3.2 reported that the design of writing task was emphasised in the interviews with teachers. This relates to the following features of the English critical writing ability test: First, the purpose is clear. This critical writing ability test is based on the course teaching, with the purpose of cultivating students' critical ability and English writing ability. Second, the test validity must be ensured. The dimensions of the test must be representative, and the coverage must be wide. Third, the test should promote teaching and have a positive effect on teaching.

Timed writing and non-timed writing are the two types of writing evaluation normally employed in English writing assessment. Timed writing is a part of English proficiency test as the IELTS and the TOEFL, and usually applied as in-class English examination which requires examinee finish the writing task in the given time. Non-times writing is another kind assessment, students are permitted to complete the writing task through a long process of information collection and draft refinement.

Students could communicate with each other and revise their writing many times before submitting their compositions.

The choice of different kind of evaluation should be based on various situations and the purpose of the assessment. In the experimental teaching, timed writing was employed to test the proficiency of students' English writing in both the pre-test and post-test. Students had to make use of all the given information and do their best to finish the writing task in the limited 45 minutes and there was no time for draft, but an outline could be drawn before writing. Non-timed writing was utilized in the writing projects of each unit, students could discuss the writing topic in groups and share their ideas with their classmates. After the brainstorming, students could write an outline before the first draft. Some modifications could be made on the basis of peer-evaluation and the teacher's feedback. In non-timed writing, students could have more time for preparing and more chances for revision. During the process of practise in non-timed writing, students could learn the writing strategies and develop their skills gradually, which could lead to better performance in timed writing.

6.3.3 Critical Thinking Competence Training Based on Writing Tasks

The design of the writing task is a very important part in critical writing instruction (see section 4.3.2 in chapter 4), and it requires the teacher to be well trained and equipped with the skills of critical writing teaching. A well-designed writing task could help teacher to assess students' critical writing abilities and help students to choose what content should be included in their writing. Well-planned writing tasks are usually expected to offer certain requirements to students, at the same time, provide some hints for some different reasons, from which students could be inspired to provide some fresh arguments and draw a better conclusion.

The outcome may be unexpected by the teacher but would be acceptable, which could prove the students' critical writing ability. From the experimental teaching for English critical writing, some basic principles were summarized for creating clear and effective writing tasks, including:

(1) The task should be designed in line with the teaching objectives. For instance, in the experimental instruction, the writing skills students had to master in unit 3 was focused on making the comparison / contrast through point-by-point in an essay, therefore, the writing task for this unit was to write an article about the generation gap between parents and children. Giving students some points to consider, like making comparation between the younger generation and the older generation from the way of thinking, the attitude to changes and their hobbies & interest.

(2) The objective, genre and reader should be identified in the writing tasks. For example, the first unit of the experimental teaching was to learn the strategies of making introduction, body (examples), and conclusion in an essay. In the writing project, writing a report on English learning strategies was clearly required as the purpose of the task, introducing the strategies of learning English to all English learner who would be the readers, clarifying the genre of the writing task was a report.

(3) The issues in the writing task should come from real world and familiar to students, which would motivate students to engage in thinking for the writing. Such as in unit 2 of the experimental teaching, the topic for critical discussion was why is it important for college students to study the humanities? In the writing task, the topic of the advantages of study the humanities courses were required to write an advantage / disadvantage essay. Students could discuss from their own experience to this kind of topic which they were interested in and would like to talk with each other

in their free time.

(4) The resources for the writing tasks should be available to students, such as some useful material they could consult or some links to the website which contain the related information needed for writing. Providing as much as opportunities for students to communicate and exchange ideas with each other was a crucial part for cultivating the ability of critical writing. In our experimental instruction, group discussions were carried out in each unit before doing the writing tasks to exchange their ideas and stimulate them to thinking critically. The topic related information was introduced in the background knowledge when analysing the theme of each unit.

(5) Some models similar to the writing task could be provided to students. Besides analysing the passages in the textbook, the selected models would help them better understand the key writing skills in each unit and the characteristic of writing structure. Furthermore, some models from classmates could provide some examples to share the shining points in their writing which could motivate other students to learn from their strengths, at the same time, some common problems could be pointed out in the selected models to warn students not to repeat the same mistakes in the future.

(6) The grading criteria should be provided in advance as a guideline for students' writing. The rubrics in the experimental instruction paid more attention to the critical thinking abilities from aspects of content (30%), organization (30%) and appropriateness(20%), which took up 80% of entire grades while the language knowledge such as words spelling, and grammar correctness only took up 20%. This kind of writing standards motivated students to spend more time and energy preparing the content

and the structure for their own writings.

In order to achieving the goal of critical writing teaching, it is crucial to design effective assignments for promoting students both English writing skills and critical thinking abilities at the same time. Well-designed tasks not only provide the opportunity for students to apply the newly learnt knowledge into practice but also could inspire them to learn and reflect automatically at the same time. Careful preparation and complete instructions were crucial for a successful writing task. The above guidelines were summarized from the experimental teaching, only an effective task could inspire students to do their best and help them to bring their critical writing abilities into full play.

6.4 Conclusion

Based on the earlier work of Hansen and Salemi (2012), Sharadgah (2014), Yu Jiying (2014) and Qi Jiaming and Zhu Sha (2018) (see section 2.3 and section 2.4 in chapter 2), this study constructs a college English writing teaching model that integrates the critical thinking ability cultivation into college English writing training for improving students' English critical writing proficiency. The fusion of critical thinking and the teaching of English writing is essential in designing the teaching plan. The English writing assessment scale incorporating critical thinking is necessary for motiving students' critical thinking in the English writing tasks, which should inspire students to apply their critical thinking competence in their English writings. College English teacher should update their teaching concepts and develop their own thinking ability to implement the new teaching mode, making use of modern auxiliary tools to provide diversified learning resources to inspire students' writing ideas and improve their writing quality. In this teaching mode, students would carry

out analysis, reasoning, justification and other cognitive activities in the process of completing the writing task actively to improve their English writing ability and critical thinking ability at the same time. Writing ability is an output expression of comprehensive language ability, which requires long-term accumulation. Only through skill training could the accumulated language knowledge be shown.

Chapter 7 Conclusion

7.1 Introduction

This study took an experimental critical writing teaching in two freshman classes of non-English majors for 16 weeks and employed mixed research methods to analyse the data from questionnaire, interviews and writing tests to research the college students' critical writing ability comprehensively. Based on the theories of second language acquisition (SLA) and constructivism, and summarizing the experiences in the experimental teaching, this study was designed to construct a much more effective teaching mode incorporating the training of critical ability into college English writing curriculum. It was designed to provide some guidance for the teaching reform of college English writing. As the last chapter, the contributions and the limitations of the study will now be summarized, and recommendations for further research and new research informed professional practice will be discussed in the next sub-sections.

7.2 Recommendations for Teaching Practice

Writing is the best combination of language and thinking and the use of written language expression is an effective way to practice thinking and language skills. On the basis that college English writing could integrate thinking skills and language ability, it is effective to combine critical thinking skills and language ability in college English writing teaching from four aspects: teaching objectives, teaching content, teaching methods, and evaluation.

Teaching objective: The teaching objective of the college critical English writing course integrates the critical thinking skills and language ability, which should be different from the traditional goal of college English

writing. The teaching goal of the experimental writing teaching is to promote students' writing skills by improving students' accuracy in using English, correcting the problems in students' writing expressions and logical thinking, mastering the skills of article's construction and content enrichment (see section 6.2). From the teaching experiment, it was suggested that the cultivation of critical thinking ability should be listed in the teaching objectives. Thinking ability could be effectively trained with a clear teaching goal.

What needs to be clarified is that although the improvement of critical thinking ability in English writing teaching is based on language ability, the poor language ability would lead to difficulty in accurate thoughts expression, students with weak language skills are not necessarily low in thinking ability, and students with strong language skills are not necessarily high in thinking ability. Therefore, the goals of language ability and the goals of thinking ability should be listed separately in the critical writing teaching objectives. In the experimental teaching, the critical writing objectives involved four aspects as content, structure, appropriateness and language. The first three related to critical thinking, language abilities included the vocabulary, grammar knowledge and expression.

Teaching content: In terms of teaching content, there are two ways to integrate critical thinking skills into language ability. The first is to add the critical knowledge and skills to textbook as supplement. The second is to adapt the content of the textbook so that it can promote the critical ability while cultivating language skills. The textbook in the experimental teaching was the *New Horizons College English (the 3rd edition)* published by FLTRP(Foreign Language Teaching and Research Press), which was

rich in content, unique in perspective, and accurate in language. The topics were close to the actual life of students. It is a good material for reading and writing teaching.

Critical discussion of the topics in each unit is specially designed in the textbook, which was for critical thinking training before the writing task. The critical thinking framework proposed by Paul and Elder (2007) based on teaching needs, including critical skills, personality disposition, and critical criterial is widely applied in thinking training. According to the characteristics of college English writing course, the adapted Paul-Elder Critical Thinking Model (see the following picture 7.1) could be applied into college English writing class, integrating the language knowledge teaching with the critical thinking training.

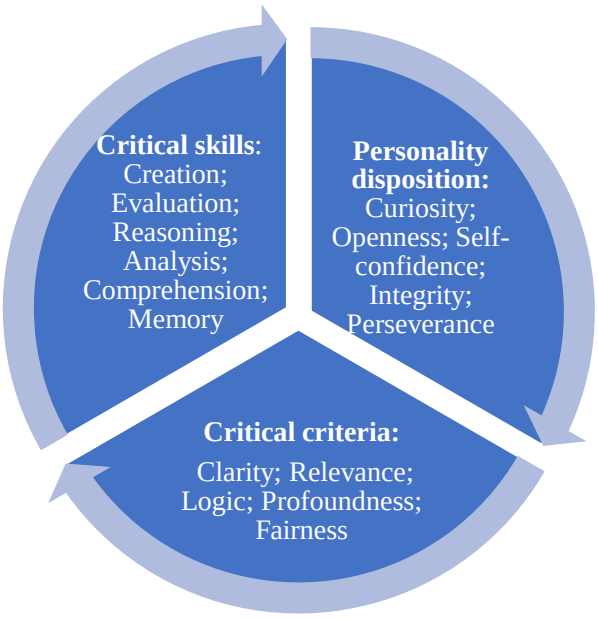


Figure 7.1 Adapted Paul-Elder Critical Thinking Model

In the teaching of college English critical writing, it is necessary to let students know the main elements of critical writing ability and the evaluation criteria of critical writing ability, so as to provide necessary

knowledge reserve for them to test purposefully whether they have good critical writing ability in the process of language learning. In the design of writing tasks, attention should be paid to the selection of controversial topics related to life, and some exploratory activities preparing for writing (see the examples in section 3.11 in chapter 3), so that students can not only improve their language ability, but also improve their critical thinking ability in the process of completing writing tasks.

Teaching method: Heuristic teaching and task-based teaching methods could be applied in class. In heuristic teaching, Socratic questioning could be conducted in the classroom to guide students to ask questions, expand students' thinking by means of mutual refutation and guide students to discuss and even debate on challenging issues.

Before writing, the teacher could guide students to brainstorm, conceive the composition as a whole and find relevant materials. In the process of writing, students could be guided how to use appropriate language expression and they should learn to evaluate their own articles after writing. In the task-based teaching, students could be divided into groups to discuss the given topics before writing. After finishing the first draft, students should proceed peer evaluation. Before reviewing the composition, a detailed and accurate evaluation criteria (see table 4.19 in chapter 4) should be made clear to them before peer evaluation. The evaluation criteria should include the standards of language usage and thinking ability. Students should have a deep understanding of the evaluation standards and then let students exchange essays in groups, grade and modify the other's essays according to the evaluation criteria, and finally select the composition with the highest score in each group for display, so that all students could clearly know the language standards and

critical requirements which excellent writings need to meet.

Based on constructivism which emphasizes a range of student-centred instruction approaches and methods differing from conventional teaching, the teacher should perform as an organizer and helper to establish a cooperative problem-solving atmosphere for encouraging students to study actively. Copple and Bredekamp (2009) claimed that scaffolding is a vital highlight of efficient education, where the teacher constantly modifies the assistance according to the student's performance. In critical writing teaching, the teacher should make use of the supporting of scaffolding and provide different scaffoldings at different stages of writing. At the very beginning, the teacher should make sure that the writing topic is familiar to students and challenging properly. During the writing, the teacher should facilitate students to develop their ideas by brainstorming or group discussions, providing them some examples and models, addressing their issues in the writing. After writing, the teacher would organize peer evaluations before giving her comments on their writings and help students to make proper modifications. By employing approximate scaffolding in the writing teaching, the teacher could help students to improve their critical writing ability and become self-regulated learners eventually.

After such teaching activities, the language requirements and critical requirements of an excellent writing could be deeply impressed in the students' minds to guide their daily writing. In the process of groupwork cooperation, students could enhance their teamwork ability, broaden their perspective of analysing problems. They would have a broad-mind and like listening to other's suggestions. These characteristics are important emotional components of critical thinking ability.

Assessment: Generally speaking, examination is the baton for daily learning, and students are willing to learn what is tested in the examination. Therefore, the integration of critical thinking ability and language ability should be reflected in the usual tests. The traditional evaluation method is simple in form and vague in standards, an effective evaluation mechanism must be constructed, including detailed evaluation criteria for students' everyday performance such as group discussions, debates, and presentations in daily classes.

It is necessary to strengthen the comprehensive assessment of the critical thinking ability and language ability in the final exam. Two aspects of the final exam should be paid attention: the types of examination writing and the evaluation standards. More inductive, summary or evaluative writing tasks should be set on the test, which integrate the dual assessment of critical thinking skills and language ability. When evaluating a student's writing, it is necessary to evaluate the language ability such as wording, sentence making, cohesive response, etc., it is much more important to focus on their thinking skills such as essay's organization, and whether students' writing meets the standards of relevance, clarity, and logic. At the same time, the teacher could guide students conduct self-evaluation according to the requirements of the evaluation standards (see table 4.19 in chapter 4) and make some modifications on their own drafts.

It should be noted that critical writing teaching puts forward higher requirements for teachers. Teachers must continuously learn the teaching methods and evaluation standards of critical ability, and also design the teaching content reasonably and ingeniously according to the teaching materials, so that students would be willing to participate in the classroom learning. At the same time, teachers should build an equal, lively, and open

classroom environment to allow students to participate in the learning process and share their views and opinions actively, develop their thinking and language ability together.

7.3 Implications for the Institution in China

1. Universities should attach importance to the reform of English writing teaching, optimize the writing teaching curriculum and increase the class hours of college English writing course. According to the teacher's feedback in the experimental teaching, organizing some lectures on English writing and various activities like debates could help students improve their critical thinking and writing skills (see section 4.3.2 in chapter 4). More effective teaching activities could be explored in additional research.

2. Education institutions should pay more attention to critical thinking in writing courses and regard the cultivation of students' critical thinking as one of the most important teaching objectives. On the one hand, the training of critical teaching for English teachers should be strengthened so that teachers can understand the new development in English teaching and the latest policies of higher education, which could improve teachers' critical teaching level. On the other hand, through training and communication, teachers could explore effective ways to stimulate students' interest in English writing and improve their teaching efficiency for critical writing.

3. A new English writing evaluation system should be constructed. A comprehensive English test not only should evaluate the language ability in relation to vocabulary and grammar, but also the aspects of the analyse, summarize, clarity and logic of thinking in English writing. In addition, teachers should guide students to take self-evaluation and peer-evaluation

according to the criteria of critical writing (see table 4.19 in chapter 4), so that students could know which aspects they should pay attention in writing practice.

7.4 Contributions of the Study

1. The significance of the current study was in the effort of integrating the cultivation of critical thinking into English writing teaching and helping students improve their overall English writing level. In China, the present college English teaching for non-English majors does not favour the improvement of students' critical writing abilities, the proposed model reformed the college English writing teaching through teaching objectives, teaching contents, teaching methods and evaluation in college English writing class (see the above section 7.2). This was of benefit for students to take analysis, inference, conclusion and other cognitive thinking in the process of completing the writing task actively. They realized the purpose of promoting their critical thinking skills and their English writing abilities simultaneously.

2. Both the teacher's critical awareness and the students' critical thinking quality were promoted at the same time. From designing the teaching process and deciding the critical writing criteria, the teacher who responsible for the experimental teaching began to pay more attention to the way of stimulating students' critical thinking potential in the course of teaching and emphasize the critical elements in students' writings. Critical discussions were organized frequently as an essential part of teaching steps. Arguments from different perspectives were welcomed in students' essays (see section 6.3.1, in chapter 6). Under the influence of critical writing teaching, students began to learn from each other and tolerate the difference, make rational analysis based on persuasive evidences in their writings.

3. An innovative critical writing evaluation system was proposed from the evaluation process, evaluation criteria to evaluation methods (see section 4.4.1, in chapter 4, and section 6.3.2, in chapter 6). In everyday writing practice, students were required to evaluate their articles with each other after they completed their writing tasks. They could learn other's merits from novel ideas to excellent expressions and avoid the same errors in their own future writings. Self-assessment had become a necessary step for modification before handing in their final draft for teacher's comments, the sense of responsibility was cultivated at the same time. The online evaluation based on big data was employed as an effective way for checking and reviewing, it made much more convenient for the teacher to make assessment and give comments. The critical writing standards in the study focused on critical thinking elements such as the content, organization and appropriateness in student' writing which set a guidance for both writing and evaluation. The proposed critical writing evaluation methods could provide some guidance for the reform of college English writing evaluation system.

4. The data of the study was from the English classroom in a local university, and the analysis of the real corpus revealed the current status of non-English majors critical thinking disposition and English writing abilities in China, which could provide some references for future related research.

7.5 Limitations of the Study

Although the experimental critical writing teaching has achieved certain achievements, there are still some deficiencies in this study.

1. The research time was limited. The issues discussed in this study were relatively abstract, but the experiment period is comparatively short,

which might impact on the reliability of the data to some extent. As most former studies in China, the period of the experimental teaching was only 16 weeks, because every 16 week is a teaching term. It should take a longer time to cultivate students' thinking. The effect would be more obvious if the time for cultivation could last for a longer time.

2. The samples of this research was 89 students from two classes, the sample size was relatively small, and the differences between students were not particularly obvious, which could not stand for the whole group of non-English majors in the university. Moreover, this experimental teaching was only carried out in one class but not tried in different grades and or different colleges. Therefore, the scope of this study needs to be expanded in order to draw more accurate research conclusions. What's more, the effect of gender difference on students' critical thinking ability during the implementation of critical writing teaching was not considered.

3. The processes for data collection and analysis were rigorous and the researcher strived to be fair and objective in the description. The conclusion of the study from the outcome of questionnaires, interviews and writing samples was trustworthy. Because of the COVID-19, the researcher could not go back to China and keep the record for classroom observation. The course of students' critical thinking development, such as the process of their discussion and the procedure of peer-assessment for learning from each other were not recorded.

4. Each student has their own unique characteristics. Due to the influence of various factors such as growth environment, study methods, and thinking habits, not all students can fully adapt to the new critical writing teaching and benefit from it. For example, some students did not have a solid English foundation and had some problems for basic expression in

English. The new teaching model of critical writing was very difficult for these students to adopt. In this case, the outcome of critical writing teaching was not ideal, much less the effect for improving their critical thinking. It might even have a negative effect on these students' enthusiasm for learning, and played an opposite role in teaching, which ran counter to the original intention of the research.

7.6 Recommendations for Further Research

Despite the limitations mentioned above, the research in critical writing teaching is still worth exploring. In the future research, researchers could pay attention to the following aspects:

First of all, in order to make the future research more effective, it would be possible to extend the research period and increase the sample range of the research objects. For example, the researchers can choose students from different grades or different schools to carry out the teaching experiment, so that the results could be more universal and persuasive. The data analysis could be carried out by more than one person, which can avoid subjectivity and make the research more credible.

Secondly, the teaching model of critical writing can also be applied to different courses of English teaching and can even be extended to other subjects other than English to verify the effectiveness of the teaching model. Designing different teaching plans according to students' various characters and language basis. At the same time, the teaching steps could be arranged more effectively, the time allocated to each stage could be considered more reasonably, and the efficiency of classroom teaching could be improved to develop the ability of students' critical thinking greatly.

Thirdly, the teaching model of critical writing could be combined with

other teaching methods to improve students' writing skills and critical thinking ability. Every teaching model has its own strengths and weaknesses. If researchers could fully recognize its advantages and disadvantages and try their best to maximize the advantages and avoid the disadvantages, the students' writing ability and critical thinking skills will be maximized.

In addition, a much more pleasant and harmonious classroom atmosphere should be created which could encourage students to express their ideas actively in the process of learning. At the same time, teachers could guide active students with higher level of critical thinking and writing skills to help and inspire other students. The more students participate in each link of the critical writing teaching actively, the more effective data the researchers could obtain, and the more successful the teaching would be.

7.7 Summary

Writing is not only a tool for language communication, but also a tool for thinking. In order to solve the problem of "critical absence" in students' English writing, basing on Paul and Elder (2002)'s definition of critical writing teaching (see section 2.4.1 in chapter 2) as well as the theories of second language acquisition (SLA) and constructivism, a new English critical writing teaching mode for cultivating non-English majors' critical thinking through English writing teaching was proposed in the present study by summarizing the experiences from some prior related studies, such as the research conducted by Stapleton (2001) (see section 4.4.1 in chapter 4), Wen Qiufang (2010) and Yu Jiying (2014) (see section 2.4 in chapter 2), which took English major as their study objective; the present study took an empirical study on non-English majors to verify the effectiveness and feasibility of the proposed English teaching mode.

The results of questionnaire, interviews and writing tests in the experimental teaching revealed the existing problems in non-English majors' writing (see section 5.2 in chapter 5), and the progress in the experimental class proved that students' critical thinking abilities and their writing proficiency are positively correlated (see section 4.5 in chapter 4 and section 5.4 in chapter 5) and students' both critical thinking ability and their English writing skills could be cultivated and promoted simultaneously by critical writing teaching (see section 5.5 in chapter 5).

In this study, my role shifted from a teacher to a researcher, an interviewer and an observer. I was responsible for data collection and analysis (see section 3.6 in chapter 3). As a student, I have been communicating my ideas and opinions with my tutors regularly. I have gained a lot of valuable experiences in the present study from the process of consulting the literature to analysing the findings in the experimental teaching. Even though there were something out of my expectation and I had to adjust my action-plan repeatedly, the supports from my supervisors and the training of quantitative and qualitative research were extremely helpful and valuable for me to deal with various challenges I faced from designing the research procedure to analysis the collected data. The methodology and reflection were not only essential in every steps of the thesis writing, but for future research as well.

All in all, the research on the critical writing teaching involves many aspects, including teaching design, analysis of student writing samples, and the collection of other data. And each link requires a lot of time and energy. I am looking forward to conducting some more in-depth research and practice on the critical writing teaching with more experts and colleagues together to explore a much more effective approach for promoting the efficiency of critical writing teaching in China.

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Appendix 1



Information Sheet

Research Project: An Empirical Study of the Impact of Critical Teaching on Non-English Majors' English Writing

PGR researcher: Yuanfen Wang

Supervisor: Dr Jessica Clapham: j.clapham@uwtsd.ac.uk

Dr. Iain Jones: i.jones@uwtsd.ac.uk

Dear Vice Chancellor,

I am writing to seek your consent for your department to take part in a research project about the Impact of Critical Teaching on Non-English Majors' English Writing Proficiency that I am conducting as part of my Professional Doctorate research at the Institute of Education and Humanities in University of Wales Trinity Saint David.

What is the study?

The study aims to construct a new classroom teaching model for the cultivation of college students' critical writing skills based on critical teaching methods and testing the effectiveness of this model in teaching practice and provide some enlightenment for the reform of college English

writing evaluation system.

Why has this department been chosen to take part?

Your institution offers College English as a compulsory course for the freshmen of non-English major and the writing is a necessary part for English tests.

Does the department have to take part?

It is entirely up to you whether you give permission for the department to participate. You may also withdraw your consent to participation at any time during the project, without any repercussions to you, by contacting the researcher, Ms Yuanfen Wang, Tel: 07561889808(UK), 15870818868 (China), email: 1904140@student.uwtsd.ac.uk.

What will happen if the department takes part?

With your agreement, two same size classes have similar overall English proficiency due to their similar scores on the National English Matriculation Test (NEMT) will be pointed as experimental group and control group respectively.

Before the experiment, the students will be tested. The students in the experimental class and the control class each will be required to write a composition and complete the critical thinking questionnaire. The experimental class will adopt critical thinking in English writing teaching, while the latter will adopt traditional writing teaching. Both classes are taught by the same teacher and both classes time are in the morning, which can basically guarantee the

internal and external validity of the experimental study. At the end of the experiment, students in both classes will be asked to complete a composition and a questionnaire as a post-test.

After the experiment, some students will randomly be selected for interviews to further understand their opinions after the cultivation of critical thinking teaching and learn more about the current status and problems of the students' critical thinking ability. Finally, SPSS24.0 will be used to analyze the changes of the two groups' critical thinking ability and English writing level in the pre-test and post-test, as well as the correlation between critical thinking ability and English writing.

What are the risks and benefits of taking part?

The information given by participants in the study will remain confidential and will only be seen by the researcher and the supervisors listed at the start of this letter. Neither you nor the students will be identifiable in any published report resulting from the study. Participants in similar studies have found it is benefitted to take part. I anticipate that the findings of the study will be useful for improving College students' writing skills.

What will happen to the data?

Any data collected will be held in strict confidence and no real names will be used in this study or in any subsequent publications. The records of this study will be kept private. No identifiers linking you, the students or the department to the study will be included in any sort of report that might be published. Research records will be stored securely in a locked filing cabinet and on a password-protected computer and only the research team will have access to the records. In line with the University's policy on the management of research data, anonymised data gathered in this research may be preserved and made publicly available for others to consult and re-use. The results of the study will be presented at national and international conferences, and in written

reports and articles. I can send you electronic copies of these publications if you wish.

What happens if I change my mind?

You can change your mind at any time without any repercussions. If you change your mind after data collection has ended, we will discard the data appropriately.

What happens if something goes wrong?

In the unlikely case of concern or complaint, you can contact Dr Jessica Clapham j.clapham@uwtsd.ac.uk or Dr. Iain Jones: i.jones@uwtsd.ac.uk.

Where can I get more information?

If you would like more information, please contact Ms Yuanfen Wang, Tel: 07561889808(UK), 15870818868 (China), email: 1904140@student.uwtsd.ac.uk

I do hope that you will agree to your participation in the study. If you do, please complete the attached consent form and return it to me.

This project has been reviewed following the procedures of the University Research Ethics Committee and has been given a favourable ethical opinion for conduct. The University has the appropriate insurances in place. Full details are available on request.

Thank you for your time.

Yours sincerely

Yuanfen Wang

September 2020

Appendix 2

Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Information Sheet

Research Project: An Empirical Study of the Impact of Critical Teaching on Non-English Majors' English Writing

PGR researcher: Yuanfen Wang

Supervisor: Dr Jessica Clapham j.clapham@uwtsd.ac.uk

Dr. Iain Jones: i.jones@uwtsd.ac.uk

Dear teacher/students,

I am writing to seek your consent for you to take part in a research project about the Impact of Critical Teaching on Non-English Majors' English Writing Proficiency that I am conducting as part of my Professional Doctorate research at the Institute of Education and Humanities in University of Wales Trinity Saint David.

What is the study?

The study aims to construct a new classroom teaching model for the cultivation of college students' critical writing skills based on critical teaching methods and testing the effectiveness of this model in teaching practice and provide some enlightenment for the reform of college English writing evaluation system.

Why has this department been chosen to take part?

Your institution offers College English as a compulsory course for the freshmen of non-English major and the writing is a necessary part for English tests.

Does the department have to take part?

It is entirely up to you whether you give permission for the department to participate. You may also withdraw your consent to participation at any time during the project, without any repercussions to you, by contacting the researcher, Ms Yuanfen Wang, Tel: 07561889808(UK), 15870818868 (China), email: 1904140@student.uwtsd.ac.uk.

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With your agreement, two same size classes have similar overall English proficiency due to their similar scores on the National English Matriculation Test (NEMT) will be pointed as experimental group and control group respectively.

Before the experiment, the students will be tested. The students in the experimental class and the control class each will be required to write a composition and complete the critical thinking questionnaire. The experimental class will adopt critical thinking in English writing teaching, while the latter will adopt traditional writing teaching. Both classes are taught by

the same teacher and both classes time are in the morning, which can basically guarantee the internal and external validity of the experimental study. At the end of the experiment, students in both classes will be asked to complete a composition and a questionnaire as a post-test.

After the experiment, some students will randomly be selected for

interviews to further understand their opinions after the cultivation of critical thinking teaching and learn more about the current status and problems of the students' critical thinking ability. Finally, SPSS24.0 will be used to analyze the changes of the two groups' critical thinking ability and English writing level in the pre-test and post-test, as well as the correlation between critical thinking ability and English writing.

What are the risks and benefits of taking part?

The information given by participants in the study will remain confidential and will only be seen by the researcher and the supervisors listed at the start of this letter. Neither you nor the students will be identifiable in any published report resulting from the study. Participants in similar studies have found it is benefitted to take part. I anticipate that the findings of the study will be useful for improving College students' writing skills.

What will happen to the data?

Any data collected will be held in strict confidence and no real names will be used in this study or in any subsequent publications. The records of this study will be kept private. No identifiers linking you, the students or the department to the study will be included in any sort of report that might be published. Research records will be stored securely in a locked filing cabinet and on a password-protected computer and only the research team will have access to the records. In line with the University's policy on the management of research data, anonymised data gathered in this research may be preserved and made publicly available for others to consult and re-use. The results of the study will be presented at national and international conferences, and in written

reports and articles. I can send you electronic copies of these publications if you wish.

What happens if I change my mind?

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What happens if something goes wrong?

In the unlikely case of concern or complaint, you can contact Dr Jessica Clapham j.clapham@uwtsd.ac.uk or Dr. Iain Jones: i.jones@uwtsd.ac.uk.

Where can I get more information?

If you would like more information, please contact Ms Yuanfen Wang, Tel: 07561889808(UK), 15870818868 (China), email: 1904140@student.uwtsd.ac.uk.

I do hope that you will agree to your participation in the study. If you do, please complete the attached consent form and return it to me.

This project has been reviewed following the procedures of the University Research Ethics Committee and has been given a favourable ethical opinion for conduct. The University has the appropriate insurances in place. Full details are available on request.

Thank you for your time.

Yours sincerely

Yuanfen Wang
September 2020

Appendix 3

Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Informed Consent Form

Title of Project: An Empirical Study of the Impact of Critical Teaching on Non-English Majors' English Writing

Name of Researcher: Yuanfen Wang

1. I have read and understood the attached information sheet giving details of the project. ☐

2. I have had the opportunity to ask the researcher any questions that I had about the project and my involvement in it, and I understand my role in the project. ☐

3. My decision to consent is entirely voluntary and I understand that I am free to withdraw at any time without giving a reason. ☐

4. I understand that data gathered in this project may form the basis of a report or other form of publication or presentation. ☐

5. I understand that my name will not be used in any report, publication or presentation, and that every effort will be made to protect my confidentiality. ☐

Participant's signature: Date:

Participant's name (in CAPITALS)

Researcher's signature: Date:

Wang Yuanfen 王沅芬

Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Informed Consent Form

Title of Project: An Empirical Study of the Impact of Critical Teaching on Non-English Majors' English Writing

项目名称：思辨教学对非英语专业大学生英语写作能力影响的实证研究

Name of Researcher: Yuanfen Wang 研究员：王沅芬

1. I have read and understood the attached information sheet giving details of the project. ☐

我已阅读并理解随附的关于此研究项目的详细信息。

2. I have had the opportunity to ask the researcher any questions that I had about the project and my involvement in it, and I understand my role in the project. ☐

我有机会向研究人员提出关于此研究项目的任何问题并了解我在项目中的角色。

3. My decision to consent is entirely voluntary and I understand that I am free to withdraw at any time without giving a reason. ☐

我自愿同意参与此研究，我明白我可以在任何时候无理由退出。

4. I understand that data gathered in this project may form the basis of a report or other form of publication or presentation. ☐

我知道这个项目中收集的数据可能会成为一份报告或其他形式的出版物或论文陈述的基础。

5. I understand that my name will not be used in any report, publication or presentation, and that every effort will be made to protect my confidentiality. ☐

我知道不会在任何报告.出版物或演讲中使用我的名字，并会尽一切努力保护我个人信息。

Participant's signature: Date:

参与者的签名: 日期

Participant's name (in CAPITALS)

参与者的姓名（大写字母）：

Researcher's signature: Date:

研究员签名 王沈芳 日期

Appendix 4



EC720 PG2 Ethics Form Approved: WANG, YUANFEN (1904140)

Postgrad Research

收件人: lizzy731@126.com; lizzy731@126.com; Yuanfen Wang (1904140)

周三 2020/12/9 12:38

抄送: Ros Coard; Jessica Clapham; PGR Athrofa

Dear Yuanfen Wang,

I am pleased to confirm that the submission of the Ethical Approval on your research 'An Empirical Study of the Impact of Critical Teaching on Non-English Majors' English Writing Proficiency' has been **APPROVED** by the University's Ethics Committee.

Please ensure that you are aware of, and use, the University's Research Data Management Policy and the extensive resources on the University's Research Data Management web pages (http://uwtsd.ac.uk/library/research-data-management/).

Please do not hesitate to contact the office should you require any further information on this matter.

Kind Regards

Steve Davies

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Appendix 5



Critical Thinking Questionnaire for Students

Research Project: An Empirical Study of the Impact of Critical Teaching on Non-English Majors' English Writing

PGR researcher: Yuanfen Wang

Dear students:

This is a questionnaire that investigates your critical thinking ability. It aims to understand the current critical thinking situation and opinions of college students.

There are no right or wrong answers, only for academic research, and the results will be kept confidential. The research needs everyone's cooperation to complete, please complete the questionnaire as required.

Basic information

1. Gender: Male□ Female□

2. Age:

3. English scores for college entrance examination:

4. College:

There are 50 questions in total. Please read the questions carefully, fill in one by one, do not omit items, and answer carefully according to your actual situation.

Thank you very much for your cooperation. Please select the number (1-5) corresponding to your idea and write the number in the brackets.

Note: The following figures 1 to 5 indicate:

"1" stands for "strongly agree",

"2" stands for "agree",

"3" stands for "NAND neither agree nor disagree",

"4" means "disagree",

"5" means "strongly disagree".

Truth-seeking

1. Truth depends on your point of view or perspective. ( )
2. Even if my opinion is not consistent with the evidence, I will stick to my point of view. ( )
3. It is important for me to understand what others think about things. ( )
4. I firmly believe in everything I believe. ( )
5. I only look for facts that support my point of view, not for facts that

are contrary to my point of view. ( )

6. Trying to understand complex problems is a pleasure. ( )
7. I am proud of being able to grasp the opinions of others. ( )
8. I like to study the laws of things. ( )

Open-mindedness

9. I can constantly talk about the problems I encounter regardless of whether they are resolved. ( )
10. If you are obviously wrong, you have no right to stick to your ideas. ( )
11. Open mind means you don't know right or wrong. ( )
12. If you want to oppose the opinions of others, you should give reasons. ( )
13. I find myself often commenting other people's arguments. ( )
14. People should not force me to defend my point of view. ( )
15. Being open to different worldviews is not as important as people think. ( )
16. Others have the right to express their opinions, but I will ignore them. ( )

Analytical ability

17. The best argument for an idea is how you feel about it now. ( )
18. My problem is that my attention is easily disturbed by the outside world. ( )
19. Faced with controversial issues, it is difficult for me to make a choice. ( )
20. When people use weak arguments to defend good ideas, I feel troubled.

( )

21. If there are four reasons for something and one objection, I will choose to agree. ( )
22. When making major decisions, I will try my best to collect relevant information. ( )
23. When I have to deal with really complicated things, I feel nervous. ( )
24. When it comes to difficult things that need to be solved, others want my help. ( )

Logic discrimination

25. People think I'm always hesitant and not decisive enough when I make a decision. ( )
26. I am trying to make decisions that are not too hasty. ( )
27. I consider myself a logical person. ( )
28. Everyone knows that I am good at dealing with difficult and complex problems in an orderly manner. ( )
29. I am good at making plans to solve complex problems systematically. ( )
30. Others expect me to determine whether the problem is solved. ( )

Self-confidence

31. I'm very proud because I can think accurately. ( )
32. The exam that requires thinking is more suitable for me than the exam that relies on memory. ( )
33. It is not difficult for me to organize my thoughts. ( )
34. When my peers have problems, they often let me make a decision because I can make a fair decision. ( )
35. I must have a sound basis to support my belief. ( )

36. People say I am impulsive and hasty when making decisions. ( )
37. I am proud of being able to come up with creative and alternative solutions. ( )
38. Everyone expects me to give advice when they need to determine the criteria for decision-making. ( )

Curiosity

39. Constantly learning new knowledge makes my life very exciting. ( )
40. I look forward to learning challenging things. ( )
41. Regardless of any topic, I want to know more about it. ( )
42. There is no way to know which method of solving the problem is better. ( )

Maturity

43. When I express my opinion, it is impossible to remain objective and fair. ( )
44. The best way to solve the problem is to ask others for advice. ( )
45. Decisions made by powerful people are not necessarily correct decisions. ( )
46. I don’t know what criteria should be used to measure many problems. ( )
47. My own experience is the only criterion for verifying truth. ( )
48. I dare not ask questions in class. ( )
49. I will constantly think about right and wrong in practice and experience. ( )
50. I will not doubt what most people think is right. ( )

Appendix 6

Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Interview Questions for Teachers

Research Project: **An Empirical Study of the Impact of Critical Teaching on Non-English Majors' English Writing**

PGR researcher: Yuanfen Wang

(1) Do you think critical thinking is important in your writing class? Why?
您认为批判性思维在英语写作课上很重要吗？为什么？

(2) So far, have students expressed certain degree of critical thinking skill in college English writing? If so, from what aspects?
到目前为止，学生在大学英语写作中是否表现出一定程度的批判性思维能力？如果有，体现在哪些方面？

(3) What do you think the relationship between critical thinking ability and English writing ability? Is there a positive correlation?
您认为批判性思维能力与英语写作能力之间的关系是什么？是否存在正相关的联系？

(4) What factors would you mainly focus on during the process of

evaluating students'

English writing? 在评价学生英文写作的过程中，你主要关注哪些因素?

(5) Is students' critical thinking skill included in their writing?

学生的写作中是否体现批判性思维能力?

(6) What kind of writing task did you usually give to the students?

您通常给学生布置什么样的写作任务?

(7) What criteria did you take to evaluate students' English writing?

您用什么标准来评价学生的英语写作?

(8) What are the general steps did you take in the critical writing teaching?

您通常在批判性写作教学中采取了哪些步骤?

(9) What kind of activities most students are interested in the critical writing teaching process?

在批判性写作教学过程中，学生最感兴趣的活动是什么?

(10) What kind of writing strategies did you teach to the students in your writing class?

您在写作课上教给学生什么样的写作策略?

(11) What are the common problems the students have in the process of critical writing?

学生在批判性写作过程中普遍存在的问题是什么?

(12) What kind of teaching strategies do you think are effective for improving students' critical writing ability?

您认为什么样的教学策略对提高学生的批判性写作能力是有效的?

(13) What is your opinion about students' self-assessment?

您对学生的自我评价有何看法?

(14) What do think of the necessity of setting up the curriculum of critical English writing? When do you think is the most appropriate time to begin this course?

您认为有必要开设批判性英语写作课程吗? 您认为什么时候开设这门课程最合适?

(15) Is there any suggestion if we integrate the cultivation of students' critical thinking ability into college English writing class?

您对于将学生批判性思维能力的培养融入大学英语写作课堂有何建议?

Appendix 7

Prifysgol Cymru
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Class 班级： **Student Number 学号：** **Name 姓名：**

Interview Questions for Students

Research Project: An Empirical Study of the Impact of Critical Teaching on Non-English Majors' English Writing

PGR researcher: Yuanfen Wang

Questions about the interviewees' language learning experience

关于受访者语言学习经历的问题

(1) How long have you been studying English?

您学英语多久了?

(2) What is the purpose/ goal for studying English?

学习英语的目的/目标是什么?

Questions about their writing experience

关于写作经历的问题

(3) How do you feel about writing in English?

您对英语写作的自我感觉怎么样?

(4) How do you improve your English writing? What are your skills and strategies?

您是如何提高自己英语写作水平的? 您的技巧和策略是什么?

(5) How often do you write in English?

您用英语写作文的频率是多久?

(6) What do you feel most difficult when you write English compositions? The lack of ideas? Vocabulary? Grammar? Or the organization of the composition?

您觉得写英语作文最困难的是什么? 缺乏创意? 词汇吗? 语法吗? 还是文章的组织结构?

(7) Do you take your audience into consideration when you are writing English essays?

您在写英文作文的时候会考虑到您的读者吗?

Questions about their experience of working with others in a group

关于在团队中与他人合作的经历的问题

(8) Do you like working in groups? If not, why not? If yes, why?

您喜欢小组合作吗? 请说明原因。

(9) Have you ever worked in groups to write ideas or a paper? If yes, how and when?

您是否参与过和小组成员一起构思作文？ 如果有，是什么时候？怎么做的？

(10) Do you feel comfortable reading other students' writing? If not, why not?

阅读其他同学的作文时，您感到舒适自然吗? 如果没有，为什么?

(11) Have you ever offered advice to other students on their paper? What kind of advice?

您曾经给其他同学的论文提供过建议吗？ 如果有，是什么样的建议？

(12) Do you like to get the opinion of others on your papers? Why or why not?

您喜欢听取别人对您论文的意见吗? 请给出理由。

(13) Do you value the opinion of your classmates? Why or why not?

您会重视同学们提的意见吗？请给出您的理由。

(14) Do you value the opinion of your teacher? Why or why not?

您会重视老师的意见吗？ 请给出您的理由。

Questions about their writing class activities

关于写作课活动的问题

(15) Which activities did you like the best in your writing class?

您最喜欢写作课上的哪些活动?

(16) Which activities did you like the least in your writing class?

您在写作课上最不喜欢哪些活动是什么?

(17) What kind of writing strategies did you learn from this class?

您在英语写作课上学到了哪些写作技巧?

Questions about their feedback

关于反馈的问题

(18) Do you think your writing has improved throughout the new writing approach? If yes, in what aspects? If no, why?

在新的写作教学中，您认为您的写作有所提高吗? 如果有，在哪些方面? 如果没有，为什么?

(19) What do you think of working in groups (taking brainstorming as an example)?

您如何看待小组合作?

(20) How do you like peer feedback activities? Was it helpful to your writing improvement?

您喜欢同伴反馈的活动吗？对您的写作提高有帮助吗?

(21) Do you think you have improved your critical thinking ability by giving comments to your classmates?

您认为评论同学们的作文是否会提高自己的批判性思维能力?

(22) How do you regard your teacher's feedback?

您如何看待老师的反馈?

(23) Is there anything that we need to improve in our teaching procedure? Please offer your advice.

我们的教学过程有什么需要改进的地方吗?请给出您的意见。

Questions about their opinions on the teaching model

关于对教学模式的看法

(24) What is your opinion about the critical writing approach? Was it helpful to the improvement of your writing competence? If so, in what aspects?

您对批判性写作教学有什么看法?对提高您的写作能力有帮助吗?如果有,是在哪些方面?

(25) Do you think you have improved your critical thinking ability in completing the writing tasks?

完成写作任务的过程中,您是否认为自己的批判性思维能力有所提高?

(26) What is your opinion about self-assessment?

您对自我评价有什么看法?

(27) Do you reflect on your thinking process? Do you question your own point of view and realize your personal bias in expressing your ideas?

您会对思考的过程进行反思吗?您是否会质疑自己的观点并意识到表达想法时的个

人偏见？

(28) If the writing class continues next term, what do you want to learn about?

如果下学期继续开设英语写作课，你想学什么？

(29) Do you think you have improved your English academic writing ability? What is the greatest benefit you have gained through the application of the new approach?

您认为您的英语写作能力有提高吗？通过新的教学方法，您获得的最大好处是什么？

(30) What is the greatest problem you have met in the process of critical writing?

您在批判性写作过程中遇到的最大问题是什么？

(31) What do think of the necessity of setting up the curriculum of critical English writing? When do you think is the most appropriate time to begin this course?

您认为有必要开设批判性英语写作课程吗？您认为什么时候开始这门课程最合适？

(32) Do you have any suggestions for the improvement of our teaching methods?

您对改进我们的教学方法有什么建议吗？

Appendix 8

Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Transcript of one interview

The student in the interview was chosen at random in the experimental class. The interview was taken on the internet through WeChat on 15th September 2021, from 11:30-11:47, UK time. The whole process was last 16 minutes 37 seconds. For better communication, Chinese was used in the interview. The interview focused on the research questions in the present study, and different colour stands for different research questions? Such as:

RQ1: What is the current status of English writing for non-English majors?

RQ2: What is the current status of critical thinking disposition for non-English majors?

RQ3: What is the relationship between critical thinking ability and English writing ability?

RQ4: How can teachers improve students' English writing ability through critical teaching?

The following is the translation of the transcript. T: teacher S: student

T: Welcome to the interview. Today we'll talk about your experience in English writing and your feedback to the critical writing teaching. You can speak either English or Chinese as you like. Our dialogue is being recorded. You have the right to keep silence if you do not want to answer the question and you can stop the interview or require deleting the

recording without any reason.

S: OK!

T: Now, let' begin! Do you like English writing?

S: Just so so! To be frank, I think my English is poor, it is hard for me to write some beautiful sentences or wonderful article in English.

T: How often do you write in English?

S: It depended on the teacher's requirements. Usually every two week we would have a writing task.

T: What do you think is the most difficult in your English writing? For example, lack of ideas? Poor vocabulary and grammar? Or the organization of the composition?

S: Er, all sounds difficult to me! To my own experience, when I faced a topic, the first thing I would consider is what idea I would express in my writing. When I have a clear idea, I would know how can I organize the writing. The most difficulty in my writing is my idea always lacking creativity, and I usually express in Chingish.

T: What kind of strategies you usually took to improve your English writing?

S: I like watching English movies and often attracted by the plots, but it has little effect on English writing. I think the most effective and fast way to promote writing level in English is to read more articles and accumulate some useful expressions like some advanced words and phrases.

T: Do you like working in groups in the English class?

S: In the English class, the teacher usually asked us to discuss in groups. When we communicated in a group, we could accumulate different ideas

and it was better for broaden our thought. I like the atmosphere of discussing together. When we were cooperating in a group, the task of everybody would become much easier. But sometimes there would be disagreement in a group, and not all the members in the group were very active, in that case , the whole progress of our task would be slow down. In all, I like to work with active people in a group and we could help each other and learn from each other.

T: *Have you ever offered any advice to your classmates on their writing? What kind of advice?*

S: In the English class, the teacher often asked us to check the writings with each other. When checked other's writing, I usually focused on whether there were any mistakes in word spelling or grammar and marked them out. Sometimes the handwriting of my classmates' article was not clear, I would suggest them to write more carefully and patiently. Of course, if I found their idea was not clear or had some obvious mistakes, I would point them out as well.

T: *Do you like to get the opinion from others on your writing?*

S: Of course. I am willing to listen to other people's ideas. After all, everyone has different ideas to the same thing. From their opinions, I could not only expand my thoughts to different perspectives, but also help me realize my own shortcomings. In this way, my English writing level would promote a lot. In most cases, I would think twice before taking other's advice, and absorb the part which I thought was right and suited my style.

T: *Do you value the opinion of your teacher?*

S: Certainly, my teacher is very kind, she has rich experience and her comments often hit the most important problem. Her professional

knowledge could help me find the key points I often neglected and help me fill the gaps. Even some small mistakes she would point out in time. She often gave her valuable advice for our development in the long run, we should keep a gratitude attitude towards her suggestions.

T: *Which class activities do you like the best?*

S: Wow, our teacher organized many kinds of activities in her teaching, I like group discussion best, because we could communicate with each other freely, different ideas and experiences shared by my classmates could stimulate my inspiration for writing. Besides that, appreciate excellent composition was very effective for me to understand the main structure we have to master and fully comprehend the ideas expressed in the article.

T: *What is your opinion about self-assessment?*

S: In my opinion, self-assessment is a good way to reflect on my mistakes and it is a process of self-improvement, from reflect on myself, I could think independently and find out my own shortcomings. This is a very good way to help me calm down and realize myself.

T: *What kind of writing strategies did you learn from this class?*

S: I feel I have learnt a lot in the class, such as how to organize my writing, how to write much more coherently and how to use conjunctives correctly. I have gotten into the habit of making an outline at first, and then adding content to it. The framework could help me keep a clear idea in writing. And the key sentence is very important for express my opinions logically and I would pay more attention to the key sentences in writing.

T: *Do you think you have improved your critical thinking ability by giving comments to your classmates?*

S: Yes, of course. When I evaluated my classmates' compositions, I could

realize my own shortcomings from their problems and absorb some useful concepts from their experiences for the future preparation. The process of commenting on classmates' compositions is a process of critical thinking and would certainly improve my critical thinking ability.

T: *What is your opinion about the critical writing approach? Was it helpful to improve your writing competence?*

S: I think critical writing teaching could help us consider from different aspects and make us realize our shortcomings more directly. From the critical writing teaching, I have learnt how to find various arguments quickly and how to write logically. I feel my way of thinking became much broader and more flexible. And I become more confident in English writing.

T: *Is there anything that we need to improve in our teaching procedure? Please offer your advice.*

S: I think the teacher's teaching is very good, if could add more interesting and useful learning materials to the classroom, such as some videos or some games, it would be better. Maybe giving more time for independent thinking could practice our thinking ability.

T: Thank you very much for taking part in the interview and share so much experience and ideas with me. I could ensure that your name would not appear in any public report or article. If you have any questions, you can ask me at any time.

Appendix 9

Prifysgol Cymru
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Writing Samples

In this study, two similar topics were employed as pre-test and post-test respectively to identify whether there were any changes in their critical writing abilities. The topic in the pre-test was *How to Deal with Peer Pressure* and the topic in post-test was *Stressful Life for Kids*. Students were required to finish their writing in 45 minutes in both writing tests. Two experienced teachers participated in coding and giving score to the students' writings. The average score of the two teachers was the final score of each student to avoid the subjectivity in scoring. The following are six examples of coding the critical thinking elements in students' writings, three samples in pre-test and the other three in post-test. The black letters stand for different critical elements in their writings.

C: claim **UC**: Unsupported Claim **O:** Opinion **R**: Reason **E**: evidence **CA**: counter-argument **IntC**: intermediate conclusion **FinC**: final conclusion **Con**: conclusion **App-aff**: Affective Appeal **App-cred**: Credibility Appeal **T:** Transition **Ref:** Refutations

1. Writing sample in pre-test got over 80 points

C1/ With the development of the information, everyone's personality is dissimilar from life's view. **E1**/ Some individuals like to be quiet, but others like to be noisy. **C2/** There is no doubt that different people meet, there will be some pressure. **T1/** Therefore, **IntC/** we are supposed to

make solution save it. **T2/** Here are some suggestions for peers to realize that everyone is independent and everyone has their own attitude towards life, **App-aff 1/** so they should understand each other. **T3/** First of all, **C3/** create a common topic among peers. **T4/** What's more, **App-aff 2/** try to find the differences between peers and try to find the bright spots in others. **T5/** Additionally, **App-aff 3/** when there are contradictions and pressures, we should communicate in time. **C4/** Only by creating a topic can we strengthen our relationship.

Con/ The pressure may not get rid of for a while, **App-cred/** but I believe that in the event that we follow the above suggestions, I believe that the pressure will be relieved a little bit soon.

Criteria	Requirements	Point	Score
Content (30%)	Be coherent to the topic (10%)	10	23
	Be supported by persuasive arguments (10%)	9	
	Be supplemented by evidences (10%)	4	
Organization (30%)	Rational writing structure (10%)	7	24
	Logic arrangement (10%)	8	
	Natural and reasonable transitions (10%)	9	
Appropriateness (20%)	The expression should be accurate and correct (10%)	8.5	16.5
	The sentences should be acceptable (10%)	8	
Language (20%)	Clear and fluent language expression (10%)	8.5	17.5
	Correct words spelling and grammatical sentences (10%)	9	
Total		81	81

2. **Writing sample in pre-test got over 70 points**

C1/ In our growth process, parents always have great expectations for us, **CA1/** but we often can not meet their requirements, **IntC/** so there are always some contradictions with our parents. **C2/** But we can't get angry

because of this, but think about how to communicate with our parents better to solve this problem. **T1/** Next, I'll talk about how to communicate with your parents to make them believe that you are a responsible person.

App-aff 1/ In the process of communicating with your parents. What you want them to believe as much as possible, you should be at peace with both sides, **App-aff 2/** and then tell them that you have inherited their advantages, and that you will try to do well. **App-aff 3/** Tell them that as an independent individual, you should have your own life goals, advantages and disadvantages. **App-aff 4/** You explain to them that you have a good lifestyle and explain how your lifestyle can help you and make you better. **Con/** This may solve your problem.

App-cred/ It may not change their opinions overnight, but one day they will agree with you.

Criteria	Requirements	Point	Score
Content (30%)	Be coherent to the topic (10%)	10	21
	Be supported by persuasive arguments (10%)	7	
	Be supplemented by evidences (10%)	4	
Organization (30%)	Rational writing structure (10%)	7	20
	Logic arrangement (10%)	7	
	Natural and reasonable transitions (10%)	6	
Appropriateness (20%)	The expression should be accurate and correct (10%)	7	15
	The sentences should be acceptable (10%)	8	
Language (20%)	Clear and fluent language expression (10%)	7	15
	Correct words spelling and grammatical sentences (10%)	8	
Total		71	71

3. Writing sample in pre-test got over 60 points

C1/ As our educational back ground increase, so does our stress. **C2/** Gradually, I became a college student, and the pressure of all the aspects of social to learn emerging in front of me. **IntC/** Faced with constant pressure. I gradually found my own way to eliminate the pressure. **T1/** I also use a method release pressure. **E1/** I sweat when being exercise to release to pressure. **E2/** I watch videos and listen to music to release pressure and reduce pressure.

C3/ Stress is like a burden, if you don't let it go, you will feel very leavy heart. **T2/** So, **Con/** take off the pressure, **App-cred /** if you think that your stress learning method is not good enough, you can use my stress release method to try, believe that you will be better in this way.

Criteria	Requirements	Point	Score
Content (30%)	Be coherent to the topic (10%)	10	20
	Be supported by persuasive arguments (10%)	5	
	Be supplemented by evidences (10%)	5	
Organization (30%)	Rational writing structure (10%)	6	19
	Logic arrangement (10%)	7	
	Natural and reasonable transitions (10%)	6	
Appropriateness (20%)	The expression should be accurate and correct (10%)	6	12.5
	The sentences should be acceptable (10%)	6.5	
Language (20%)	Clear and fluent language expression (10%)	6.5	13.5
	Correct words spelling and grammatical sentences (10%)	7	
Total		65	65

4. Writing sample in post-test got over 80 points

C1/ With the rapid development of society some parents tend to expect

too much from their children. **C2/** There is a lot of stressful life for kids. **T1/** The following are some of where they come from.

T2/ First and foremost, **C3/** there is no doubt that the harsh reality will be a huge stress. **E1/** Based on a large number of surveys, many successful elites in society say they feel great pressure in life and work. **T3/** Furthermore, **C4/** it is obvious that peer also gives us considerable pressure. **O1/** As people say, where there are people, there is competition. **T4/** Therefore, **E2/** there is always a lot of competition in the school, **App-aff1/** which makes us feel a lot of pressure. **T5/** Last but not least, **C5/** parents' love for their kids is intangible stress. **CA1/** Although stress may promote children to study hard, **App-aff 2/** it should be appropriate. **IntC/** Excessive stress will make children feel like they are carrying a mountain. **CA2/** Although parents' love is beneficial to ours; it is giving a lot of pressure on us.

T6/ In a word, **C6/** to set reasonable expectations for the kids is not easy, **App-aff3/** but it is worth trying. **App-cred/** Since if we spare no efforts to promote ourselves, the future of our life will be promising and rosy.

Criteria	Requirements	Point	Score
Content (30%)	Be coherent to the topic (10%)	10	24
	Be supported by persuasive arguments (10%)	10	
	Be supplemented by evidences (10%)	4	
Organization (30%)	Rational writing structure (10%)	9	28.5
	Logic arrangement (10%)	9.5	
	Natural and reasonable transitions (10%)	10	
Appropriateness (20%)	The expression should be accurate and correct (10%)	9	18.5
	The sentences should be acceptable (10%)	9.5	
Language (20%)	Clear and fluent language expression (10%)	9	18
	Correct words spelling and grammatical sentences (10%)	9	
Total		89	89

5. Writing sample in post-test got over 70 points

C1/ Children's daily life is often accompanied by a lot of stress . **E1/** For example, the deepening of learning, changes in interpersonal communication, changes in environment and so on will bring pressure to children.

C2/ In fact, other than at school, many life trifles have a profound influence on them, **E2/** such as eating, reading, sleeping, playing games and many other trifles that are easily ignored by parents.

C3/ Children tend to be more stressed than adults, **R1/** because they don't have the ability to express emotions, ask for help and offer comfort, and **R2/** they don't know how to deal with life's stress.

C4/ Half of children's pressure comes from their parents, **CA1/** but parents don't often think that parents' lack of care or excessive attention to their children may bring pressure to their children. **IntC/** And the extra demands of parents on their children are the reasons for their

psychological pressure. **App-aff/** As parents, they trust their children's inner self-growth motivation. To help children build up the encourage to face pressure.

Criteria	Requirements	Point	Score
Content (30%)	Be coherent to the topic (10%)	10	21
	Be supported by persuasive arguments (10%)	7	
	Be supplemented by evidences (10%)	4	
Organization (30%)	Rational writing structure (10%)	7	20
	Logic arrangement (10%)	8	
	Natural and reasonable transitions (10%)	5	
Appropriateness (20%)	The expression should be accurate and correct (10%)	8	16
	The sentences should be acceptable (10%)	8	
Language (20%)	Clear and fluent language expression (10%)	8	17
	Correct words spelling and grammatical sentences (10%)	9	
Total		74	74

6. Writing sample in post-test got over 60 points

C1/ Some psrents tend to expect too much from their children. **T1/** At the same time, **C2/** also give children too much pressure, **C3/** always hope that children to be successful.

T2/ Fristly, **C4/** the harsh reality. **C5/** Now the children pressure is also more and more bigger .**E1/** The emergence of all kinds of cram schools, **CA1**/ if the children do not have some so-called interests, it is incompatible withe others,can not integrate into the collective. **T3/** Secondly, the peer pressure. **R1**/ Parents see other people's childreb so excellent, they will think why their own children can not be so excellent ,will take various ways to let the children can not be so

excellent ,will take various ways to let the children learn, **IntC/** which will noly make the children more and more tired. **T4/** Finallty, **C6/** Parents' love for their kids. **C7/** This is another kind of other parental love, **C8/** and this love is too heavy, will pressure the child quite not straight body.

App-aff/ To set reasonable expections for the kids is no easy, but is worth trying.

Criteria	Requirements	Point	Score
Content (30%)	Be coherent to the topic (10%)	10	21
	Be supported by persuasive arguments (10%)	8	
	Be supplemented by evidences (10%)	3	
Organization (30%)	Rational writing structure (10%)	7	19
	Logic arrangement (10%)	6.5	
	Natural and reasonable transitions (10%)	5.5	
Appropriateness (20%)	The expression should be accurate and correct (10%)	5.5	11.5
	The sentences should be acceptable (10%)	6	
Language (20%)	Clear and fluent language expression (10%)	5	10
	Correct words spelling and grammatical sentences (10%)	5	
Total		61.5	61.5

Appendix 10

Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Teaching Content

Content	Critical thinking	Writing skills	Reading skills	Writing project
Unit 1	What are the most important factors that encourage students to learn English?	How the introduction, body (examples), and conclusion developed	Reading for the key ideas in sentences	Writing a report on English learning strategies
Unit 2	Why is it important for college students to study the humanities?	Focus on an advantage / disadvantage essay	Reading for major details	The advantages of study the humanities courses.
Unit 3	How can young people cope with this difficult time period-the odyssey years?	Focus on a comparison / contrast essay (point-by-point)	Understanding figurative language	Generation gap between parents and children
Unit 4	Which is more important when it comes to marriage, one's appearance or character? Why?	Focus on narrative essay and how the story develops with details	Understanding idiomatic expressions	Love at first sight
Unit 5	Do you prefer to spend or save? Why?	Focus more on a comparison / contrast essay (subject-by-subject)	Understanding denotation and connotation	Is it necessary for students to get a part-time job to make an allowance? Why or why not?
Unit 6	How do you understand the English saying, 'Less is more'?	Focus on a cause-and-effect essay	Reading between the lines	The effect of iPhone addiction
Unit 7	What are the differences between men and women when it comes to their respective working styles?	Focus on an example essay	Predicting the author' ideas	What are the advantages and disadvantages of being a full-time homemaker?
Unit 8	In what ways do you agree that animal research helps medical treatments advance?	Focus on an argumentative essay	Identifying the author's purpose	Why are dogs considered as man's best friends?

The experimental teaching content base on the teaching material *New Horizon English* which was comprised by 8 teaching units described in the teaching content table. Each unit was taught two weeks and each week had 2 teaching periods including critical discussing to explore the theme of each unit thoroughly, writing skill and reading skill training, and a writing project requiring to making use of the learned writing skills in various writing genres around the theme discussed in each unit.