The Development of Critical Thinking in the Academic Writing of Chinese Students: Case Study in a UK University

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Abstract:

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This research explores the development of the critical thinking of eleven Chinese international students through their UK university master's degree course using semi structured interviews at different stages through their year of study and one round of interviews with their lecturers in order to examine differences in perspective between students and lecturers.

The findings from the first round of interviews with the students established a baseline position where the students showed they understood the need for them to demonstrate critical thinking in a UK University, and that this involved questioning and comparison of different positions when this had not been the case in China. However, the Chinese students exhibited large power distance to their lecturers resulting in reluctance to question and seek clarification of assessment feedback.

The subsequent rounds of interviews with the students revealed different rates of development of understanding of critical thinking between those who made continuous and significant progress and those who made less progress, and also the different intentions of students to apply their experience to implement changes in their future work on return to China to communicate their understanding to students in the Chinese education system.

The findings are analysed with consideration to differences between Chinese and Western perspectives on critical thinking in education, influenced by the traditions of Confucian values and Socratic questioning respectively.

My new contribution to knowledge is in presenting an understanding of the development of critical thinking skills in the students by synthesis of their existing knowledge from their own tradition and ideology with the different expectations of their UK education culture and how they may apply this in constructive new solutions to current education problems in China.

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QAA	Quality Assurance Agency for Higher Education
UKCISA	UK Council for International Student Affairs
EFL	English as a Foreign Language
IELTS	International English Language Testing System
HEI	Higher education institution
BERA	British Educational Research Association
Gaokao	The National college entrance examination
ERIC	Education Resources Information Center
NCPSSD	National Center for Philosophy and Social Science Documentation

Chapter One: Introduction

In the field of education, critical thinking is considered as a liberating force and an important educational goal (Facione, 1990). Huber and Kuncel (2016) additionally pointed out critical thinking is a life skill valued by employers and policy workers. From the earliest years in their academic development, Chinese students through exam-oriented methods are taught to absorb knowledge through rote memorization, mimicking and being obedient (Luo, 2002). This has led to concern about a significant failure in the development of their critical thinking skills, especially in their writing ability (Huang, 2008 & 2010). In Higher education in the UK critical thinking is highly valued and students are expected to demonstrate critical thinking in their assessed work (Tian, 2008). However, students from all culture backgrounds including British may have difficulty to understand the meaning of critical thinking and how to show it in their work (Duro, Elander, Maratos, Stupple & Aubeeluck, 2013). QAA (Quality Assurance Agency for Higher Education, 2018) has the explicit expectation for higher education providers to enable every student to develop as an independent learner, study their chosen subject(s) in depth and enhance their capacity for analytical, critical and creative thinking. This applies across a wide range of subject areas and these subject areas often explicit in requiring the demonstration of critical thinking (Forbes, 2018). Motivated by my own teaching experiences as an English teacher for twelve years in my teaching institution in China and during time spent as a visiting scholar at Coventry University, the issue of the critical thinking of Chinese students aroused my interest. Tian and Low (2012) point out that: “the training that Chinese students received in China may not have prepared them well for academic writing at an advanced level in the UK” (Tian and Low, 2012, p.299). My PhD research explores the development of the critical thinking of a sample of Chinese international students and how they demonstrate critical thinking in their academic writing. My research participants are eleven Chinese international students and their five lecturers. This research examines semi-structured interviews and coursework feedback that students received from their lecturers. This research is carried out with a philosophical basis of social constructivism and self-regulated learning theory, with knowledge

acquired within the specific context. Various factors are explored which influence the development of learners' critical thinking and how critical thinking might be applied to the Chinese context.

1.1 The importance of critical thinking

In 1906 the American sociologist and humanist William Sumner indicated that both individuals and schools have a sociocentric view and tend not to challenge this view (Sumner, 1906). "The popular opinions always contain broad fallacies, half-truths, and glib generalizations" (Sumner, 1906, p.630). "Criticism is the examination and test of propositions of any kind which are offered for acceptance, in order to find out whether they correspond to reality or not" (Sumner, 1906, p.632). People with a critical spirit do not make a judgment in haste and are wary of their own prejudices (Sumner, 1906). John Dewey, a contemporary philosopher and educator with William Sumner, holds a similar view (Paul, Elder and Bartell, 1997). He believes that education should encourage people to have active, substantive and careful thinking about beliefs and knowledge (Dewey, 1910). Dewey (1910) states that thinking involves comparing and contrasting alternative theories and practices from traditional and innovative knowledge and synthesizing the results to solve problems.

Since the era of Socrates, critical thinking has been considered as necessary for democratic participation because democracy is built on independent thinking and rational judgment of citizens, rather than obedience to authority (Lim, 2011). Socrates in Plato's Apology described his relationship with the ancient Greek state, which is "a gadfly on a great and noble steed" (cited in Plato, 428/427 or 424/423 BC—348/347 BC). Only bites from a gadfly can make a contented and lazy horse stay awake. Until today, critical thinking is still considered as an important core quality of modern citizens.

"Critical thinking" has long been a concern of education in western civilization. In recent years there has been an explicit focus in this area of critical thinking. John Dewey identified "learning to think" as a primary purpose of education in 1933 (Halpern, 2003). In the field of higher education, the acquisition of critical

thinking skills may be considered to be the most important goal (Facione, 1990). How to help students to cultivate the awareness and enhance the ability of rational judgment is a challenge for educators. Gu and Liu (2006) argue that critical thinking skills can be enhanced by learning and training, and created an instruction text book to do so, but admit that the specific means of how these skills can best be trained requires further research.

1.2 The urgency of developing critical thinking in China

The ancient Chinese thinker Mencius once said of the acquisition of wisdom: “To this attainment there are requisite the extensive study of what is good, accurate inquiry about it, careful reflection on it, the clear discrimination of it, and the earnest practice of it” (Qiao translated, 2012). Critical thinking is a component part of this concept. Critical thinking also has a long history in the west. From Ancient Greece to now, western civilization has continued and evolved its discussion of thinking. Philosophers in different periods have held different views in relation to critical thinking. For example: the Socratic questioning method is a useful means to expose the contradictions of an argument. People recognize their original doubts and confusion and generate new ideas through “spiritual midwifery” (Saran and Neisser, 2004). Spiritual midwifery is explained: “Its basic idea is to guide the student towards an independent analysis of philosophical or mathematical problems and towards the development of ways of solving them without directly pointing out the solution, or the paths towards it” (Saran and Neisser, 2004). The task is to expose contradictions and to guide people to find and discover an answer. The Socratic Method pioneered a historic precedent in critical thinking education and now this teaching method is still used by many western educators (Saran and Neisser, 2004). Although it has a long tradition throughout thousands of years of Chinese civilization, in comparison with the UK, critical thinking has not been considered as an important goal in education in China recently (Tian, 2008).

In the academic field, one model of thinking ability is Bloom’s taxonomy - a set of three hierarchical models which is used where thinking can be categorised into levels which range from lower to higher order thinking skills: The cognitive

domain of Bloom's taxonomy categorised thinking skills into the levels of remembering, understanding, applying, analysing, evaluating and creating (Bloom, 1956). In China, teaching and learning in Higher Education mainly focuses on the lowest two levels: remembering and understanding. Some Chinese researchers are concerned about this issue. He (1999, p.25) said: "In China, teachers often stress remembering facts, but ignore students' thinking ability to analyse problems and arrive at an independent position". This indicates that Chinese students may be short of critical thinking ability (Wen and Zhou, 2006).

1.3 Demonstrating critical thinking in academic writing

Writing is one of the most effective means to train the critical thinking ability of students and can also significantly improve the analysis, inference and evaluation skills in students (Quitadamo & Kurtz, 2007). Writers need to interpret, reason, infer, evaluate, analyse, make interconnections between ideas and then express their own thoughts when using a target language to write. Hamp-Lyons and Heasley (2006) stated that in academic writing, the content should have serious thought, complex sentences should show considerable variety of construction in style, the organisation should be clear and well planned, grammar should be error free and technical and academic language should be used accurately in vocabulary. In academic writing the content should have serious thought, and this is strongly connected with critical thinking. Elder and Paul (2016) stated that critical thinking needs to be demonstrated in writing. They believed that well-educated people have clear, accurate and profound writing skills. Educated people understand the close relationship between excellent writing and profound thinking, and they are also accustomed to using critical writing skills in their study (Elder and Paul, 2016). Miller (2002) also declared that success in writing can make students become more open-minded and help them develop into critical thinkers.

"No-one would dispute the assertion that a mastery of academic writing in different genres and the development of skills in critical thinking and appraisal are fundamental elements in all academic disciplines" (Borglin, 2012, p.611).

Critical thinking is used to process knowledge required for academic writing and plays an important role in the cognitive process of literature reading. Specifically, using critical thinking involves adding the writers' own understanding to the ideas in the sources, the reasons for use of the sources and the analysis of the sources.

Second language writing ability and proficiency cannot be equated with first language writing. In second language writing, limited vocabulary and social knowledge of the language can be two of the writer's challenges. In addition, motivation and emotional factors can also affect the level of writing (Wang and Wen, 2002). Sun (2014) stated that the critical writing of second language writers tends to develop slowly, which is manifested in less use of literature to support their own views or to evaluate the literature. Writers in a second language may not be able to present alternative views to understand as many different arguments and ideas about an issue. Critical thinking in academic writing is closely related to the selection, use and analysis of the literature and it is more challenging for writers in a second language to develop a critical literature review (Sun, 2014).

There are an increasing number of studies on second language writing, but many of them compare and emphasize the similarities between first language writing and second language writing, and pay little attention to the characteristics of second language writing (Beare, 2000). There are significant differences between first language writing and second language writing. Bilingual thinking is a peculiar phenomenon in second language writing. Some studies have found that second language writing at the initial stage is not a pure second language thinking process, and writers with low second language proficiency often rely on first language thinking (Kobayashi & Rinnert, 1992). Chinese learners experience different levels of difficulty in English academic writing. Some of the difficulties are at the sentence level, such as vocabulary and grammar, and some difficulties come from the rhetoric and discourse level (Yu, 2014). Connor (2012) showed that second language learners often use the linguistic model and rhetorical criteria of their first language culture in their English academic writing. The rhetorical difficulties experienced by writers from another language and

culture cannot be explained only by the lack of knowledge of English grammar and vocabulary (Connor, 2012).

A further challenge in writing is the need for students to identify and be able to use the discourse and language expected in their specific discipline. Trowler, Saunders and Bamber (2012, p.9) define this mastery of disciplines as:

> *Reservoirs of knowledge resources shaping regularised behavioural practices, sets of discourses, ways of thinking, procedures, emotional responses and motivations. These provide structured dispositions for disciplinary practitioners who reshape them in different practice clusters into localised repertoires. While alternative recurrent practices may be in competition within a single discipline, there is common background knowledge about key figures, conflicts and achievements. Disciplines take organisational form, have internal hierarchies and bestow power differentially, conferring advantage and disadvantage.*

In this research, the course in which the sample students are engaged is a Master of Arts in International Education. The students will therefore be expected to become expert in this specific discipline. The course overview describes it as designed for educational professionals from all levels of education or other organisations which are dedicated to education. Students will be expected to understand significant issues and factors prevailing nationally and internationally. It also expects students to reflect upon theory and practice and conduct research including ethical considerations and strive to make improvements. All of these aspects of the course require a critical approach appropriate to the subject discipline, and higher levels of criticality will be rewarded in assessments. The complexity of critical thinking may challenge students from all cultural traditions to understand how critical thinking should be demonstrated in their specific discipline. Despite the fact that all students may struggle with the concept of criticality in their subject area, there may be some additional challenges due to their cultural and educational background that Chinese international students face.

1.4 Chinese international students in the UK

In 2016 there were around 4 million students in the world studying abroad for higher education (UNESCO, 2016). It is predicted that this number will increase to about 7 million by 2025 (Bohm et al, 2002). In the UK, the globalisation of education is a strategic goal for the development of every university. The number of international students is a major indicator of the degree of internationalisation (Boski et al, 1994). Chinese students have become the main group of students studying abroad and a major financial income source in British higher education. Mkehm (2004) pointed out that international experience can help to develop students' personality, to broaden their horizons, to enrich social knowledge and culture, and to adapt to unfamiliar situations. International experience can also help students to improve their qualifications, not only in foreign language ability, but also in employment ability and career in international situations (Yang, 2005). However, in the process of globalisation of higher education, there are some problems of intercultural adaptation for international students and it has been estimated that at least 20% of them are facing problems (Leong & Chou, 2002).

With the reform and open policy of the Chinese government since 1978 and the rising per capita income in China, an increasing number of Chinese students have the opportunity to study abroad, and Chinese students have become the main group of international students in Western higher education (Edwards & Ran, 2006). The UK is one of the main destinations for Chinese students to study abroad. Chinese international students account for more than 50% of the total number of postgraduate students in some courses in universities in the UK (Universities UK International, 2017). UK Council for International Student Affairs (UKCISA, 2018) states: "The number of Chinese students far exceeds any other nationality; almost one third of non-EU students in the UK is from China. This is the only country showing a significant increase in student numbers (14% rise since 2012-13)". There may be some differences in the assessment, feedback, teaching and learning methods in higher education between the UK and China.

My research makes an original contribution to knowledge, and findings and recommendations may be useful for those lecturers teaching master's courses

to gain understanding and to connect with their own experiences of how to optimise Chinese international students' learning. The focus is to provide a new perspective on research in the development of critical thinking in the academic writing of international students from China. For scholars in the UK, this research explores how Chinese international students understand critical thinking, what teaching pedagogies and factors can contribute to the development of critical thinking, which may therefore give British scholars teaching guidance and enable them to have more understanding in helping Chinese international students with their problems in life and academia. It may also be useful for leaders and policymakers in the British education system to consider what new opportunities and selling points can be generated in the education market with China. It engages with an important emerging theme of East meets West, and invites international scholars who teach the students who are not studying in their home language to connect with this research.

1.5 My personal experiences

Motivated by my own teaching experiences as an English lecturer of 12 years in my teaching institution in China and during the time spent as a visiting scholar at Coventry University, the issue of the critical thinking of Chinese students aroused my interest. Whilst I was a lecturer in one university in China, around 20% of the students I taught rarely asked questions or actively participated in discussions in class. Only 10% of the students I taught often asked questions or actively engaged in discussions (Qian, 2009). The current education in many schools in China mainly focuses on imparting knowledge, and takes the imparting of theoretical knowledge and professional knowledge as the main goal of teaching. The challenge of criticality and critical thinking is not confined to China. Many places including the UK focus on examination results and may result in a superficial approach to learning in order to pass the exam. However, there are some aspects in Chinese exam culture and may encourage a non-confrontational view of critical thinking (Tan, 2020). Teachers often adopt a spoon-feeding method to impose correct answers on students (Qian, 2011). Students accept knowledge without thinking in the process of learning. Students store theoretical knowledge in their brains and do not apply their theoretical

knowledge to inform their acts, without forming their way of thinking (Qian, 2011). If students lack critical thinking, they may not develop the ability to assess and be selective in their choice of data and are submerged by a large amount of information. They may lack the cognitive ability and analytical ability to process the competing demands on their attention from different sources of information that may or may not be trustworthy. The result of this form of education may be that students are unwilling to ask questions in their lessons and become obedient towards authority (Qian, 2011).

Teachers in one Chinese university I worked at considered that students rely too heavily on the Internet (the path of least resistance and least effort and fake news), and this leads to students who find it difficult to contextualize and may result in plagiarism. Students lack an adequate degree of critical thinking skills to compare and contrast alternative sources of information with discernment, which leads to problems such as overuse and misuse of Internet information. Students in China are not taught how to critically evaluate sources for criteria of currency, relevance, authority, accuracy and purpose (Illinois State.edu. CRAAP, 2019).

The cultivation of critical thinking ability should be included in the teaching targets in universities in China. Dewey (1966) emphasized the importance of developing thinking ability in education. The current teaching targets in the university I worked at in China do not include cultivating students' critical thinking ability. Their English language course can be used as an example. The teaching target in the foundation stage is to impart a basic knowledge of English language, to cultivate students' ability to use the language and to lay a solid foundation for entering a higher stage of learning. The teaching target in the higher stage is teaching professional knowledge in English language, expanding students' scope of knowledge, enhancing the sensitivity to cultural differences, and improving the ability of comprehensive use of English for communication. According to the content of these teaching targets, the cultivation of critical thinking is absent in the students' learning journey.

Cultivating critical thinking is the biggest benefit one Chinese international student acquired from her doctoral study in her university in the UK. I was a

visiting scholar at Coventry university in the UK in 2013. I interviewed one PhD student, who was at the final year of her doctoral study. I asked her one question: “What is the biggest benefit you gained from your doctoral study in the UK?” The answer she gave to me is the cultivation of critical thinking, which surprised me. I thought that the answer may be related with other factors such as research skills, specific knowledge and writing style. Her answer aroused my interest in exploring critical thinking among Chinese international students who may not have rich understanding of critical thinking before they commenced their study in the UK.

1.6 Research questions

The difference between the UK and China in Intended Leaning Outcomes for students, and the subsequent teaching focus of teachers, confirmed by my own teaching experience in China show that it is urgent to research critical thinking among Chinese students who can mobilise their new knowledge to be empowered to be societal innovators for equity and renewers of their socio-economic local and global contexts. In this research, the starting point is developing critical thinking in academic writing of Chinese international students in one UK University and the aim of this research focuses on the following four questions.

(1) How is critical thinking described and understood by Chinese international students and their lecturers in the context of a UK HEI (Higher education institution) master’s degree course?
(2) How do Chinese international students demonstrate critical thinking skills in their academic writing on this UK HEI master’s degree course?
(3) What factors contribute to the development of critical thinking of these Chinese international students?
(4) How do Chinese students describe and understand the development of their critical thinking on the way they might solve a named professional challenge when they return to China?

1.7 The contents of this dissertation

The contents of this dissertation are as follows:
The first chapter is the introduction. It introduces the importance of critical thinking, the urgency of developing critical thinking in China, the demonstration of critical thinking in academic writing, the large number of Chinese international students in the UK, how my personal experience generated the interest to do this research on critical thinking, and the introduction of the four research questions.

The second chapter is the literature review which is related to the four research questions. Four themes are presented and critiqued. First, different definitions, theories and understanding of critical thinking. Second, critical thinking in contemporary China. Third, the relationship between critical thinking, academic writing and language ability. Fourth, how teaching pedagogies and feedback affect critical thinking. Finally, a critique of critical thinking testing and measurement is examined and some empirical studies on the critical thinking of Chinese students are demonstrated.

The third chapter details the research design. Social constructivism which emphasizes the influences on human development from social and cultural contexts is used as the philosophical basis of this research. The reasons to choose a case study strategy and qualitative methods are presented. After I received ethical approval, three rounds of interviews were carried out with students at different learning stages. The use of ‘Wechat’ for recruitment of research participant students is highlighted. The trustworthiness of this research including my position as both an insider and outsider is also provided.

The fourth chapter is the findings and discussion on the first research question which is how critical thinking is defined and understood. The description of critical thinking from participant students and the interpretation of critical thinking from lecturers are presented in this chapter. Intellect and emotions in critical thinking are discussed. Whether Chinese international students are a special group in the UK education system is also explored.

The fifth chapter is the findings and discussion on the second research question,

which is how Chinese international students demonstrate critical thinking in their academic writing. Answers from lecturers on how Chinese international students develop critical thinking in their working samples are analysed. The relationship between language and critical thinking is explored. Different thinking styles and rhetorical patterns affect differences in academic writing in Chinese and English.

The sixth chapter is the findings and discussion on the third research question, which covers factors contributing to the development of critical thinking of Chinese international students. The views from students and lecturers on teaching pedagogies are presented. The responses from students and their lecturers on feedback are compared. Chinese international students reported large power distance towards lecturers.

The seventh chapter presents the findings and discussion on the fourth research question, which is how Chinese students describe and understand the development of their critical thinking skills on the way they might solve a named professional challenge when they return to China. Critical thinking in learning theories in ancient China is described and there is an analysis of obstacles from Chinese culture to critical thinking traditionally associated with Chinese culture. Cultivating critical thinking from an early age, leaders playing a guiding role and new teaching cultures are recommended by participant students. Developing teachers' critical thinking is also important. How to overcome the cross-cultural differences between China and the west in defining critical thinking is discussed.

The eighth chapter is about the development of critical thinking from participant students. Eleven participant students were categorized into three critical thinking development groups: one that had made continuous and prominent progress, another had made some progress, and finally the group making little progress. The influencing factors on the development of different groups of students' critical thinking ability are analysed.

The ninth chapter is the conclusion. The significance, contribution, limitations of this research and future study resulting from this research are expressed on the basis of reviewing and discussing the research findings. I also reflect upon my own personal feedback, challenges, confusion and achievement in this research

journey.

Chapter Two: Literature Review

Much has been written on the theory of critical thinking and there are many different explanations in the current literature. Researchers have pursued different research areas in relation to critical thinking. On the one hand, this shows that the research on critical thinking has diversity, which contributes to the richness of critical thinking research. On the other hand, there are some divergences on the ideas of critical thinking, which indicates that there are many uncertainties in the field of critical thinking research, and it is necessary to have more exploration into the theory and practice of critical thinking.

With the focus of my four research questions, the literature review was conducted in five steps which were：

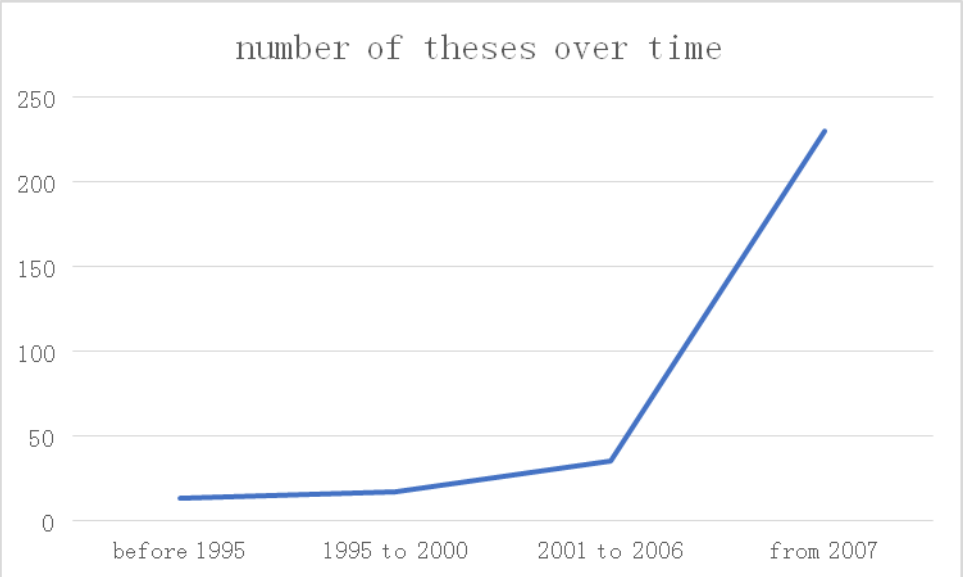
- database search
- documentation of my search
- organisation of key findings
- literature survey
- literary criticism

The databases I used include the British library, University library at University of Leicester and ERIC (Education Resources Information Center). I also used Chinese databases to search literature in Chinese which were cnki.net and NCPSSD (National Center for Philosophy and Social Science Documentation).

One example of my systematic approach to literature searching and selection was that I conducted an analysis of doctoral theses on critical thinking from the British library database. The reason for this was to attempt to acquire a comprehensive overview of the situation of critical thinking research in the UK in a macro way. Typically, from both a theoretical basis and social practice perspectives, doctoral theses should be able to demonstrate a clear conclusion, a clearly described context for the study and a clear logical structure, all of which provides useful references for later researchers.

Initially, in order to locate the most relevant studies, the words ‘critical thinking’ were used as key words to retrieve doctoral theses in the website of the British library. The results show that 296 records were found from 1971 to 2019. From the view of subject disciplines, these doctoral theses are mostly related to the fields of education, education & training, management and psychology. The growing trend of doctoral theses, focusing on the area of critical thinking is shown in the following graph:

Graph 2.1: The trend of doctoral theses in the area of critical thinking



The abscissa is the time period, and the ordinate is the number of doctoral theses. There was clear evidence of an increase in theses related to critical thinking over time. It suggests that in the academic field of study, the study of critical thinking is worthy of attention.

By examining the reference list used in these theses, I was also able to obtain a wider range of primary sources to consider.

This chapter reviews research literature on the following concepts: critical thinking, critical thinking theoretical models, empirical research into critical thinking and research gaps. The first section explores the definition and understanding of critical thinking in the West and in China. The second section discusses how critical thinking skills are demonstrated in academic writing. The third examines factors which contribute to the development of critical thinking.

These three areas are directly related to my first three research questions. The fourth section reviews empirical studies about the critical thinking of Chinese students. The conceptual framework of my research is also explored and discussed.

2.1 The definition of critical thinking

The word “critical” comes from two Greek roots. One is “kritikos”, which means being able to judge or discern. The other is “kriterion”, which is the means or standard for judgement. In etymology, critical thinking can be understood as “the art of analysing and evaluating thinking with a view to improving it” (Paul and Elder, 2006, p.4). Paul, Elder and Bartell (1997) analysed the history of the development of critical thinking, pointing out that the origin of critical thinking can be traced back to its etymology and the teaching practice of Socrates (Paul, Elder & Bartell, 1997), which is discussed in the section.

2.1.1 Socratic dialogue method

Critical thinking is said to originate with Socrates and the Socratic questioning method (Wu, 2014). Socratic method is a means to expose the contradictions of argument. This approach seeks to find the definition of a concept by exposing opposing ideas as well as contradictions and conflicts in opinions. Socrates believed: “The unexamined life is not worth living” words spoken towards the end of his trial (cited in Plato’s Apology, 38a, pp.5-6). Socrates did not teach his followers by the use of authority and he did not claim that he was the wisest man. Socrates was acutely aware of his own ignorance. Plato recorded Socrates as stating that to know that you know nothing is a means to reach true knowledge. He believed that the best way for people to live was the pursuit of virtue and knowledge. Socrates deemed it necessary to accomplish this task through “spiritual midwifery” (Saran and Neisser, 2004). When he discussed the nature or definition of ethical concepts such as justice or virtue, he employed questioning methods which he developed over his lifetime (Taylor, 1998). Through questioning, the two sides in debate could identify contradictions and amendments so as to gradually deepen their understanding. Socrates often engaged in discussion with others. He started from their everyday concepts and

then interactive discussion proceeded to explore and question their views, using a method that began with an acceptance of knowing nothing and then went on to establish new concepts in thinking.

The Socratic method comprises several steps: (1) Introduce a question which people are interested in. The question may have an ethical dimension such as what is friendship, what is dignity, what is a good act. (2) Give a concrete example that addresses the question and discuss in dialogues. People seek to find their doubts and confusion to their original knowledge through Socratic "elenchus" (Meckstroth, 2015) or argumentative dialogue. (3) Questions about the concrete case are successfully answered and the group are eventually satisfied that they have arrived at a statement which addresses the question. The participants reach some truth without being told directly.

Socratic questioning method is a thinking activity which allows the understanding of things closer to "absolute true knowledge" (White, 2002). This method is through "elenchus," bringing people to understand a concept of doubt, confusion in thinking and the contradictions and conflicts present (Meckstroth, 2015). In the face of new facts, people generate new ideas by induction of logical thinking. The Socratic method seeks the meaning of the concept by induction and then forms universal concepts. The typical characteristic of the Socratic method is making people's thinking progress from unclear to clear, from irrational to rational, from untested to tested and from inconsistent to consistent.

In the research literature, Saran and Neisser (2004) have used the Socratic method with teaching critical thinking research and some have suggested that the Socratic method should be one of the main methods of teaching critical thinking. The essence of the Socratic method is through the questioning of people's beliefs and explanations and then analysis of which of them lack evidence or rational basis. This emphasises the clarity and consistency of thinking, which embodies the spirit of critical thinking. Socrates made two key contributions to the theory of critical thinking. First is a questioning, rational humility and an open mind. The second is that Socrates constantly demonstrates and inspires others to follow the method of questioning. The Socratic questioning

method created historical precedent in critical thinking education as it related to the various educational disciplines. By questioning and evaluating the original ideas, people exposed the truth. The Socratic questioning method initially established the early state of the dialogue form of critical thinking.

2.1.2 John Dewey's reflective thinking

Dewey's reflective thinking theory plays an important role in the development of critical thinking. The content of reflective thinking theory is rigorous and systematic, and for a long time has influenced the content of critical thinking (Luo, 2002). Dewey argues that reasonable conclusions should be based on reason and evidence. He stated: "Reflection thus implies that something is believed in (or disbelieved in), not on its own direct account, but through something else which stands as witness, evidence, proof, voucher, warrant; that is, as ground of belief" (Dewey, 1910, p.8). Dewey points out that "Thinking, for the purpose of this inquiry, is defined accordingly as that operation in which present facts suggest other facts (or truths) in such a way as to induce belief in the latter upon the ground or warrant of the former" (Dewey, 1910, pp.8-9). Reflective thought is defined 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." (Dewey,1910, p.6). From Dewey's analysis of reflective thinking, people need to have enough reasons and ideas to make a conclusion and accept a certain belief. "Thinking in its best sense is that which considers the basis and consequences of belief" (Dewey,1910, p.5). Dewey considers that the best way of thinking is reflective thinking. Reflective thinking is different from clumsy thinking which draws conclusion hastily without inquiry.

2.1.2.1 Characteristics of John Dewey's reflective thinking

Firstly, reflective thinking has purpose. The difference between reflective thinking and other forms of thinking is its purpose. The purpose of reflective thinking is demonstrated in its control of concept and thinking processes. "His reflection is aimed at the discovery of facts that will serve this purpose" (Dewey, 1910, p.11). Reflective thinking is different from any imagination. "Reflective thought is like this random coursing of things through the mind in that it consists

of a succession of things thought of; but it is unlike, in that the mere chance occurrence of any chance “something or other” in an irregular sequence does not suffice” (Dewey, 1910, p.2). Reflective thinking aims at achieving purpose. “Demand for the solution of a perplexity is the steadying and guiding factor in the entire process of reflection” (Dewey, 1910. p.11).

Secondly, reflective thinking is a regular and continuous process. It involves continuous ideas and each successive part of reflective thinking is logically formed. “Consecutiveness means flexibility and variety of materials, conjoined with singleness and definiteness of direction” (Dewey, 1910, p.40). “It means variety and change of ideas combined into a single steady trend moving toward a unified conclusion” (Dewey, 1910, p.40).

Thirdly, reflective thinking is the expression of the logic ability of the human brain. Reflective thinking is different from other kinds of thinking, that is, reflective thinking is the individual activity of examination, verification and exploration. It is a process to form belief based on evidence and rational choice. One important part of critical thinking is to observe, collect evidence, assess evidence and make appropriate judgment. “The consequences of a belief upon other beliefs and upon behaviour may be important, then, that men are forced to consider the grounds or reasons of their belief and its logical consequences. This means reflective thought— “thought in its eulogistic and emphatic sense” (Dewey, 1910, p.5).

2.1.2.2 The process and structure of reflective thinking

In Dewey’s opinion, reflective thinking is to make the confused and difficult things distinct and clear. The function of reflective thinking is to turn empirical suspicious, contradictory and disordered situations into clear, organised, stable and harmonious situations (Dewey, 1910). The answer to a question is just the beginning of problem solving. In reflective thinking, people firstly question the problem, then draw clear conclusions through reasoning and finally realise the new value of the problem. Dewey (1910) states a chaotic and confusing situation in thinking is the natural situation before reflective thinking. He states the clear,

consistent and assured situation as situation after reflective thinking. Reflective thinking is carried out between the two situations. Reflective thinking involves five stages. “(a) a felt difficulty; (b) its location and definition; (c) suggestion of possible solution; (d) development by reasoning of the bearings of the suggestion; (e) further observation and experiment leading to its acceptance or rejection; that is, the conclusion of belief or disbelief ” (Dewey, 1910, p.72). Dewey considers this process as the solving of a problem, which is first of all to doubt, then form questions, develop alternative solutions, use reasoning, implement the solution and evaluate the outcome. Olatunji (2012) states that John Dewey’s problem-solving method is not a simple process. Dewey emphasises the role of confusion, doubt and curiosity in reflective thinking, and he emphasised its creative component and reflection in real life.

Dewey considers that the structure of reflective thinking includes two aspects: (1) The habit of reflective thinking. (2) Knowledge of logical reasoning. To some extent, logical reasoning is one skill and one logic method to deal with problems. A sceptical doubting attitude is the key to generating reflective thinking. However, a doubting attitude is not reflective thinking and reflective thinking must be explored rationally. A doubting attitude and logical reasoning are inseparable parts of reflective thinking. “Sub processes in every reflective operation are: (a) a state of perplexity, hesitation, doubt; and (b) an act of search or investigation directed toward bringing to light further facts which serve to corroborate or to nullify the suggested belief” (Dewey, 1910, p.9).

Dewey (1910) claims that the attitudes of reflective thinking include three main aspects. (1) Open-mindedness, which embraces an attitude of tolerance towards new subjects, facts, ideas and issues. Open-mindedness contains willingness to listen to different opinions rather than one-sided statement. Open-minded people pay attention to facts from various channels and take full notice of the possibilities which are available. Open-mindedness allows us to admit that there is the possibility of error in our favoured position. (2) Whole-heartedness, which should mean that people put total commitment to certain things or events. (3) Responsibility, which is a moral trait. Dewey (1910) states that reflective thinking

takes into account the consequences of action. It means that people with reflective thinking are willing to accept any reasonable and consequential effects, which guarantees the interconnection and coordination of beliefs. The above three aspects constitute a reflective thinking habit.

Critical thinking requires a foundation of morality. In terms of the theory of reflective thinking, Dewey (1910) actually sees that morality and emotion are important parts of critical thinking. Critical thinking can easily become mechanical, flippant, arbitrary and impulsive if it loses its connection to moral norms and emotions.

Dewey (1910) emphasizes the significance of curiosity in his reflective thinking. He made three observations about curiosity. (1) Curiosity originally has nothing to do with thinking. (2) Under the influence of social stimulation, curiosity can develop to a higher level. (3) Curiosity transcends the level of organism and society. It can become an intellectual and rational activity (Dewey, 1910). People often ignore this part in their research on critical thinking. However, some well-known critical theorists put interest with cognition together on the research of social reflection (Ainley, 2006; Luo, 2002). It is not hard to see that Dewey emphasizes the significance on the relationship between reflective thinking and curiosity.

In Dewey's view, it is necessary to develop the habits of reflective thinking and individual logical reasoning ability. Dewey (1910) states: If we need to make a choice, one consideration is the individual's attitude, another is the knowledge of logical reasoning applied, which requires a certain level of skill and can be a specialized logical method to deal with problems. We may choose the former of these two. Fortunately, we do not need to make that choice because individual attitudes and logical method are not antagonistic (Dewey, 1910). This idea is of great significance for educators and researchers to explore how to conduct critical thinking research and to engage in critical thinking education.

Dewey's analysis of reflective thinking forms a systematic framework of critical thinking research, which established the basic development direction of critical

thinking for a long period of time. Much research in critical thinking such as whether critical thinking can be transferred across disciplines or not and how to teach critical thinking can be viewed as a continuation of Dewey's reflective thinking research.

2.1.3 Glaser's theory and Ennis's theory

2.1.3.1 Glaser's theory

Glaser published an experiment in the development of critical thinking in 1941, which explored critical thinking in a context of child psychology (Glaser, 1941). Although we are not sure whether Glaser was the first person to put forward the concept of 'critical thinking', we can be sure that Glaser used the concept of 'critical thinking' very early and conducted research on it. Glaser (1941) states that critical thinking is composed of attitude, knowledge and skills. These include: (1) A questioning attitude, which has a relationship with realizing the existence of the problem and that evidence should be attached to the topic and ideas. (2) Effectively reasoning about abstract and general knowledge, through which people can logically determine the strength and reliability of the evidence. (3) Skills to use this attitude and knowledge. (Glaser, 1941). Glaser's critical thinking theory is concise and states that critical thinking involves the element of knowledge. Glaser's work has come to be considered a seminal study of critical thinking and education. With a counterargument to views of learners as passive recipients of knowledge, Glaser's work has influenced contemporary ideas that learning is not only transmission of knowledge. Wagner (2019) uses Glaser's work as a principle source and a point of departure for his argument with the definition "an attitude of being disposed to consider in a thought way the problems and subjects that come within the range of one's experiences" (Glaser, 1941. p.5 cited in Wagner, 2019. p.159).

2.1.3.2 Ennis's theory

Ennis states that "critical thinking is reasonable, reflective thinking that is focused on deciding what to believe and do" (Ennis, 1985, 1987). Ennis's ideas on critical thinking mainly inherit Dewey's theory of reflective thinking. He also

considers reflective thinking as an important part of critical thinking. Ennis characterizes critical thinking not as simply a way of thinking, but as a skill that can be learned through specific cultivation and patterns. Ennis put theories of critical thinking into practice, which made him have an important influence in this field.

Ennis's definition of critical thinking as reasonable, reflective thinking that is focused on deciding what to believe and do led him to a point of view that the major components of critical thinking are on the analysis and clarification of argument, as well as the evaluation of assumptions and inferences. However, the inferences and evaluation do not encompass all parts of critical thinking. Critical thinking also includes ability and personality traits (Ennis, 1989).

A major contribution of Ennis in the definition of critical thinking is the detailed analysis of the elements of critical thinking skills. Ennis believes that critical thinking skills mainly include six basic elements and he assigned to them the acronym FRISCO (Ennis, 1989). FRISCO means that "Focus, Reasons, Inference, Situation, Clarification and Overview", which is stated in Appendix 1.

Ennis carried out a structural analysis on the definition of critical thinking, which made it possible that critical thinking skills could be taught and trained. Ennis's critical thinking theory has been widely used in educational practice (Yildirim and Ozkahraman, 2011).

Although the advantages of Ennis's theory are clear, there are some disadvantages. Firstly, the definition is too broad. The scope of "what to believe and do (Ennis, 1985, 1987)" is too large to be understood clearly. Secondly, Ennis did not specifically clarify the definitions of critical thinking, problem solving and higher order thinking. Ennis only pointed out that "The concepts of critical thinking are adaptable to other concepts of thinking, such as higher order thinking, problem solving and metacognition" (Ennis, 1989, p.4). Instead Ennis offers a practical approach to how to incorporate critical thinking across the curriculum (Ennis, 2018).

2.1.4 Paul and Elder's critical thinking theory

2.1.4.1 The definition of Paul and Elder's critical thinking theory

Paul (1992) describes that "Critical thinking is about your thinking while you're thinking in order to make your thinking better". Paul has different definitions on critical thinking under different situations. Paul (1992, p.9) defines critical thinking as "disciplined, self-directed thinking that exemplifies the perfections of thinking appropriate to a particular mode or domain of thinking". Paul and Elder state that critical thinking "entails effective communication and problem-solving abilities and a commitment to overcoming our native egocentrism and sociocentrism" (Paul and Elder, 1992, p.2).

Paul's important contribution on critical thinking is to elevate the collision of two individual concepts to the evaluation of their own ideas. Paul's theory is called the strong sense and weak sense of critical thinking. The distinction between strong sense and weak sense of critical thinking helps to understand the role of critical thinking (Paul, 1982). If the idea of critical thinking is only used as a way to preserve one's own beliefs and opinions, it is weak sense of critical thinking. The reason why it is weak is that such use of critical thinking is not pursuing truth and virtue but to eliminate dissidents, which undermines the value of critical thinking in promoting humanitarian, development and progress. Strong sense of critical thinking is different. It advocates applying critical thinking to all points of views including one's own points. By criticizing existing beliefs, people can avoid self-deception and blind faith in others. Strong sense of critical thinking does not require the abandonment of existing beliefs, but may provide evidence for such beliefs. Using critical thinking on these beliefs can reinforce the identification of these beliefs (Paul & Elder, 2001).

Paul's theory emphasizes the role of dialogue. This theory states that strong sense of critical thinker can understand and grasp things in general, can recognise different world views and can talk to people with different world views and cultural backgrounds. According to this theory, equal dialogue is an essential feature of critical thinking (Paul, 1993).

2.1.4.2 Paul-Elder critical thinking framework

Paul and Elder (2006) established the ternary structural model to analyse critical thinking. They believe that eight elements of thought are purpose, question, perspective, information, assumption, concept, inference, consequences and implication. They consider that the standards of thinking which are clarity, accuracy, depth and fairness should be applied to the elements of reasoning. The intellectual traits of critical thinkers include intellectual humility, intellectual perseverance, intellectual autonomy, confidence in reason, intellectual integrity, intellectual empathy, intellectual courage and fair-mindedness. Intellectual standards must be applied to elements of reasoning to develop intellectual traits (Paul & Elder, 2006). The framework of Paul and Elder's model is shown in Appendix 2.

Comparing Ennis' and Paul's theories in critical thinking, there are some differences. Both Paul and Ennis's critical thinking ideas include critical thinking skills and emotional factors. Ennis based his theory on critical thinking skills and Paul emphasized the emotional factors of individuals. Paul's critical thinking has moral characteristics. The moral characteristic of critical thinking is that the purpose of critical thinking is not for the benefit of a particular number of people or individuals. Paul's definition of critical thinking is to moralize the function of critical thinking and to avoid that critical thinking becomes the tool of chicanery and sophistry. The ternary structural model of Paul and Elder (Appendix 2) has complicated elements of thinking in its representation, which may be difficult for people to understand and use. However, despite its complexity the model is still used. For example, Wagner (2019) relies upon the model developed by Paul and Elder (2008) to give a method for the speechmaking process.

2.1.5 Siegel's critical thinking theory

Siegel (1988) emphasises the link between critical thinking and rationality. Siegel (1988) states that critical thinking is driven by rationality and a critical thinker is moved by reasons. "A critical thinker, then, is one who is appropriately moved by reasons" (Siegel, 1988, p.23). The core of the definition of critical thinking is

reasoning and the force of reasons to make judgment, assertion and actions. Siegel (1988) thinks critical thinkers as people who base their beliefs and actions upon critical questioning.

In Siegel's theory, the concept of critical thinking includes elements of action. Siegel argues that "a critical thinker must be able to assess reasons and their ability to warrant beliefs, claims and actions properly" (Siegel, 1988, p.34). This means that critical thinkers should have the ability to evaluate reasoning, to justify their beliefs and to evaluate their own opinions and actions appropriately. In this theory, critical thinking mainly points to rational judgment rather than to truth. Critical thinking is opposed to relativism. Siegel (1988) believes that sound reasoning and rational judgments about particular beliefs are absolute and do not significantly change according to different people, time and culture.

In the structure of critical thinking, Siegel (1988) considers that critical thinking consists of two parts. One is reasoning and evaluation, which includes the skills and ability to understand, evaluate and argue. The second is a critical spirit component, which includes complex tendencies, attitudes, psychological habits and personality traits. A critical spirit component and reasoning are the two key components of critical thinking (Siegel, 1991).

Compared with Ennis and Paul's theory of critical thinking, Siegel's theory emphasises the importance of critical spirit which includes complex tendencies, attitudes, psychological habits and personality traits. The critical thinker speaks highly of reasoning and tends to make rational judgment and action. Critical spirit includes the spirit of objectivity, the pursuit of justice, willingness to explore evidence and refuses to have preference and arbitrariness. In addition, the critical thinker is compassionate and has the personality traits to evaluate knowledge and belief not according to certain interest.

In Siegel's theory, the term 'critical spirit' is used rather than critical thinking affective disposition. From the definition of critical thinking, the concept of critical spirit is more macroscopic than the affective disposition in critical thinking. This theory attaches more importance to the macro description of critical thinking

personality traits rather than micro structure analysis. If we analyse the personality traits included in critical thinking, perhaps using both critical spirit for a macro definition and using affective disposition for micro structural analysis should be considered for further discussion.

2.1.6 Halpern's critical thinking theory

Halpern (1998, p.450) states: "critical thinking is the use of those cognitive skills or strategies that increase the probability of a desirable outcome". In Halpern's theory, critical thinking skills include elements as follows: understanding reasons, the cognition and judgment of the hypothesis, analysing the related psychological goals, giving reasons to support conclusions, evaluating the degree of probability and uncertainty, integrating information into a broader framework and using analogy to solve problems. Halpern (1998, p.452) divides these into five skills. (1) "Verbal reasoning skills", which include skills to understand and oppose the persuasive techniques in the language of daily life. (2) "Argument analysis skills". An argument is a set of statements, which at least consist of a conclusion and a reason to support the conclusion. In the real-life situation, argument is complex and often contains reasons which are contrary to the conclusion, the hypothesis which has been explained and unstated, irrelevant information and intermediate steps, which needs higher analysis skills. (3) "Skills in thinking as hypothesis testing". Its basic meaning is that people interpret, predict and control events like an intuitive scientist. Such skills include generalization, proper sampling, accurate evaluation and assurance validity. (4) "Using likelihood and uncertainty". There are few things in life people can be precise about the nature of. Therefore, the ability to use probabilities correctly plays a key role in making almost every decision. (5) "Decision making and problem-solving skills". To some extent, all critical thinking skills are used to make decisions and solve problems. This means extracting alternative assumptions, making choices in assumptions and applying the skills to judge them (Halpern, 1998, p.452). These five skills are defined as a taxonomy of critical thinking skills (Halpern, 1998). In addition, Halpern (1998) presents cognitive monitoring skills. Metacognition has a guiding effect on how to effectively allocate limited cognitive resources and how to use different cognitive

strategies. It is often defined as “what we know about what we know” (Halpern, 1998, p.454) and may be interpreted as the ability to use knowledge to guide and improve the process of thinking and learning. It refers to the use of self-consciousness to guide thinking skills. Whilst carrying on critical thinking, people need to monitor their own thinking processes, check whether their thinking process is appropriate for targets, promote the precision of thinking and make decisions (Halpern, 1998).

Compared with critical thinking theories of Ennis, Paul and Siegel, Halpern’s theory presents metacognition in critical thinking skills and emphasizes the relationship between critical thinking, decision-making and problem-solving.

2.1.7 Facione’s critical thinking theory

In 1990 the American philosophical association Delphi research project report established a definition of critical thinking skills using two dimensions which are cognitive skills and affective dispositions (Facione, 1990). This project used qualitative research methods to consult forty-six experts. This project integrated comments from these experts and summarized their definitions of critical thinking. The Delphi report defines 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” (Facione, 1990, p.2). The main features of this critical thinking theoretical model have two dimensions, which are cognitive skills and affective dispositions. In this theoretical model the cognitive skills can be divided into six sub-skills. Facione (1990, 2011) describes the model specifically and the details are shown in Appendix 3. This Appendix shows that through observation and analysis of cognitive skills three categories (interpretation, analysis and evaluation) are mainly concerned with external information. Three other categories (inference, explanation, and self-regulation) are concerned with the output of their own information. Critical thinkers can either accurately analyse and evaluate external information or rationally express and regulate their own thinking results.

The theory of the Delphi report has similarities with the theory of Ennis. Compared with Ennis, the Delphi report emphasises affective dispositions more than skills. Facione (2011) points out that these six sub-skills are not linear but are repeatedly used in the process of critical thinking, which can ensure rigorous process and reliable results.

2.1.8 A critique of the critical thinking theories presented

The various theories and models of critical thinking presented above were organised into the table shown in Appendix 4 to allow a more systematic contrast and comparison. This table was also designed to be used to assist in data analysis.

There is an increasing consensus in the above critical thinking theories and some common characteristics can be drawn (Wechsler et al, 2018). Firstly, critical thinking theories identify critical thinking skills. Critical thinking skills include the skills to ask questions; the skills to understand, evaluate and argue; the skills to make reasonable judgments and the skills to solve problems. Secondly, critical thinking is closely related to rational and logical reasoning ability and may be equivalent to solving problems. Thirdly, critical thinkers should have certain affective dispositions and emotional qualities such as passion for exploring the unknown, vigilance of their own prejudices, and an open attitude towards dispute. Fourthly, critical thinking theory includes scepticism. Fifthly, the process of critical thinking includes metacognition and self-regulation, which means that thinkers need to use critical thinking to monitor, adjust and amend their own thinking in the process. Sixthly, there is a link between critical thinking and morality. Critical thinking requires a certain moral foundation.

However, different critical thinking theories have different priorities. Glaser puts forward a comprehensive theory of critical thinking, which states that critical thinking includes skills, attitudes, tendency and knowledge. Ennis’s theory mainly emphasizes the logical reasoning and the ability to argue, which means that critical thinking is about the logical reasoning and the ability to argue about whether the presentation of knowledge is right or wrong. Paul’s theory

emphasizes the importance of dialogues, morality, emotional dimension and self-criticism. Paul also distinguishes critical thinking to people themselves and to others, which means that criticism includes other people's ideas but also their own ideas. Paul treats self-criticism as a strong sense of critical thinking. Siegel's theory is more similar to Ennis's theory, which emphasizes the role of reasoning skills in critical thinking. Compared with Ennis's theory, Siegel emphasizes more about evaluation ability in critical thinking skills. In Siegel's theory, the concept of critical spirit is more macroscopic than the affective disposition in critical thinking. Halpern's theory emphasizes the role of reasoning ability in critical thinking. Halpern and Facione both state that critical thinking includes critical thinking skills and tendency and emotions, and highlight the role of self-reflection. These researchers hold different definitions of critical thinking skills and tendencies, especially when describing critical thinking tendencies.

There are different understandings of the elements of critical thinking skills in the above theories. Ennis describes that critical thinking skills mainly include six basic elements, which are Focus, Reasons, Inference, Situation, Clarification and Overview (FRISCO). Halpern divides critical thinking into five skills which are used to make decisions and solve problems. Facione divides critical thinking skills into six categories which are Interpretation, Analysis, Inference, Evaluation, Explanation and Self-regulation. Although the three theories give different definitions of critical thinking skills, they all involve finding questions, making logical and well-reasoned judgment and solving problems. These fundamental skills of critical thinking are the aim to be improved by the teaching programs designed by Saiz, Rivas and Olivares (2015).

2.2 Critical thinking in China

2.2.1 Chinese traditional thinking and critical thinking

Critical thinking is not an inherent mode of thinking, but a product from the integration of certain social, cultural and historical conditions. The modern western critical thinking theory is produced under the conditions of western society (Guo, 2013). In western academia, one view is that oriental culture does

not have the tradition of critical thinking. Those who hold this view state that the concept of critical thinking is a peculiar phenomenon in western culture and a product of the pursuit of truth, reason and democracy in Western culture (Atkinson, 1997). Grosser and Lombard (2008) found that there is relationship between culture and the development of critical thinking. It is only a part of western social practice and has no place in Asian culture. Asian culture does not adopt critical thinking in social practice (Atkinson, 1997). The introduction and analysis of critical thinking theory in the literature review also give the impression that there is no critical thinking in Chinese cultural history. However, I hold that this view is incorrect and it is based upon inadequate understanding of Chinese historical evidence. Based on Chinese educational theory, language and traditional culture, the following section will analyse the tradition of critical thinking in Chinese culture and factors that hinder the development of critical thinking in China in recent times.

2.2.2 Critical thinking in the learning theories of ancient China

Although the term of critical thinking was not explicitly used in ancient China, ancient thinkers emphasized critical thinking and its effects in their learning theories. More than two thousand years ago, Confucius often expounded an attitude of scepticism in learning. This scepticism in learning can be regarded as an early form of critical thinking (Luo, 2002). In *the Analects* collecting Confucius's saying and ideas, the role of thinking in learning was mentioned many times. For example, "Scepticism is the beginning of thought and the means of learning” (Analects of Confucius). "Learning without thinking is confusing and thinking without learning is perilous” (Analects of Confucius). Not only did Confucius pay attention to the role of thinking in learning, Mencius (372-289 BC or 385-303 BC, Mencius or Mengzi was a Chinese Confucian philosopher) also advocated learning through the spirit of scepticism. "One who believes all of a book would be better off without books” (Mencius, Vol 14) said Mencius. The Mencius is a collection of stories and conversations of the Confucian thinker and philosopher Mencius. On the role of reflection in learning, Xunzi (310-235 BC or 314-217 BC, Xunzi or Xun Kuang was a Chinese Confucian philosopher) also had a unique proposition that “a person with

erudition who self-examines themselves frequently will obtain knowledge and make few mistakes” (Xunzi, a book attributed to Xunzi). The Song Dynasty (960-1279) was a particularly active period of ancient Chinese academic thoughts, which has produced some representative thoughts. For example, Zhang Zai (1020-1077), a master of Neo-Confucianism in the Song Dynasty, argued that "with scepticism on an argumentation, one should wash away old-fashioned ideas to embrace new ones” (Zhang, Complete writings of Master Zhang). His use of the term ‘scepticism’ implies initial questioning of ideas with the possibility of acceptance of new ideas after examination which may have much in common with more recent interpretations of aspects of critical thinking. Zhang Zai also pointed out that "those who do not take a sceptical attitude on things which are in need of scepticism have not learnt, as scepticism is required in learning” (Zhang, Complete writings of Master Zhang). Zhu Xi (1130-1200), a contemporary Neo-Confucianism master with Zhang Zai, said: “If you have no doubts in reading, you shall seek doubts. Those who have doubts shall solve doubts. Only by this way can people make progress” (Zhu, Cheng-Zhu Confucianism). Later, Lu Jiuyuan (1139-1192) said: “In learning, one should worry about the absence of doubts. Doubts come with progress; the more doubts, the more progress” (Lu, 1139-1192). From the views of these thinkers on the role of scepticism and introspection in learning, scepticism is a necessary condition for learning and thinking and a prominent manifestation of making progress in learning. Ancient Chinese thinkers stressed that the critical thinking process is a necessary stage in learning while emphasizing the role of a sceptical tendency and attitude. In this respect, many thinkers have reached a basically consistent agreement.

‘The Book of Rites’ is one of the five classic books which represent Confucianism and pre-date the first Chinese emperor (in the Qin dynasty, ie before 211 B.C). It addresses the rules and rites of social forms and official ceremonies. One section ‘The Doctrine of the Mean’ contains ideas that have much in common with some current thought in critical thinking. One paragraph states that "We need to learn extensively, inquire minutely, think carefully, discern clearly and implement earnestly. Unless we do not learn, we must not stop until we learn it fully; Unless we do not inquire, we must not stop until we

inquire it thoroughly. Unless we do not think, we must not stop until we think about it wholly. Unless we do not discern, we must not stop until we discern it completely. Unless we do not implement, we must not stop until we implement it entirely” (the Doctrine of the Mean). In this paragraph, the “inquiring minutely”, “thinking carefully”, “discerning clearly” contain rich thoughts of critical thinking. These three parts of the thoughts cannot simply be integrated into “thinking carefully”. In comparison to a modern definition of critical thinking, "inquiring minutely" has the meaning of questioning, "thinking carefully" contains the meaning of temporarily shelving judgments and "discerning clearly" bears the meaning of logical analysis and reasoning. Then, Zi Xia (507-?), a disciple of Confucius, interpreted Confucius' thoughts and put forward the learning method of "learning extensively, aiming firmly, inquiring sincerely and thinking currently", which organically integrated the three factors of "learning, inquiring and thinking". After that, thinkers of the Song (960-1279), Ming (1368-1644) and Qing (1644-1911) dynasties, such as Zhang Zai, Zhu Xi, Wang Shouren (1472-1529, a renowned ancient Chinese philosopher), Wang Fuzhi (1619-1692, a renowned ancient Chinese thinker), Yan Yuan (1635-1704, a famous ancient Chinese thinker), all made further expositions on “inquiring minutely”, “thinking carefully” and “discerning clearly”.

Zhang Zai inherited the traditional view in “the Doctrine of the Mean” *in the Book of Rites* and divided the learning process into five stages which are “learning”, “inquiring”, “thinking”, “discerning” and “implementing”. The aspects of “inquiring”, “thinking” and “discerning” which can be identified in concepts within modern critical thinking played a vital role in his analysis of the learning process.

Zhu Xi (1130-1200) made a more systematic analysis of “learning extensively”, “inquiring minutely”, “thinking carefully" and "discerning clearly" involved in learning. "The four aspects, learning, inquiring, thinking and discerning are used to probe the truth” (Zhu, 1130-1200). He maintained that “inquiring minutely” is an inevitable stage after “learning extensively”. “thinking carefully” is based on “learning extensively”.

Zhu Xi had repeatedly stressed the role of "thinking carefully" in learning. Only

by "thinking carefully", "thinking cautiously", "thinking deeply", "thinking exquisitely and slowly" and "repeatedly researching and thoroughly probing" can people make what are acquired “refined but not miscellaneous” and “express their true meanings”. "Discerning clearly" is a stage after "thinking carefully" and a natural development and an inevitable result of "thinking carefully". "Discerning clearly” makes the knowledge distinct and the truths clear. To achieve "discerning clearly”, we must be good at seizing the key points and go deeply into them step by step. "In reading, only by what is like seeing the seams of a jar can one seek thorough truths…Once seeing the seams, one can grasp its skeleton” (Zhu,1130-1200). It can be seen from this that the emphasis on critical thinking has a tradition in the ancient Chinese educational culture.

From the above literature, I would argue that ancient Chinese thinkers distinguished the process of thinking which can be seen as similar to how some contemporary thinkers have defined concepts of thinking and critical thinking. Take Zhu Xi as an example. He divided the thinking process into two parts including “Si (thinking)” and “Lü (considering)” (Zhu, 1130-1200). His thoughts of "Lü (considering)" has a meaning which is similar to a modern definition of critical thinking. "Lü, is the repeated review of thinking”. "Lü is making a thorough inquiry”. "Lü is the careful portion of Si”. From the quotes from Zhu Xi, “Lü” contains the process of “thinking”.

Other thinkers have similar views. In what is considered to be ‘knowledge’, the Song Dynasty (960-1279) clearly divided “the knowledge of hearing and seeing" and "the knowledge of virtue". Although it may be far-fetched to think that the distinction between “the knowledge of hearing and seeing” and “the knowledge of virtue” may be similar to the distinction between "perception", "reason" and "intellect" by Kant ([1781] 1998) appeared in the western society. However, it is clear that these thinkers already had some understanding of similar issues. Two Chengs (Cheng Yi (1033-1107) and Cheng Hao (1032-1085), (two renowned ancient Chinese philosophers) were the representative in this respect. They inherited Zhang Zai's thoughts and divided “the knowledge of hearing and seeing” into two kinds, which were ‘true knowledge’ and ‘common knowledge’. The former comes from personal experience while the latter is from hearsay

which is indirectly obtained. They also divided “the knowledge of virtue” into three kinds, including “Si (thinking)”, “Lü (considering)" and "Rui (Wisdom)” and preliminarily clarified the relationship among them. Deep “Si (thinking)” turns into “Lü (considering)”. Eventually “Si” and “Lü” naturally develop into “Rui”. In the three factors, “Lü” is the reflections on "Si" and the link to rise to “Rui”. Although the two Chengs hadn’t further explained precisely how the knowledge of hearing and seeing develop into the knowledge of virtue, they had some similarities with western philosophers on expounding relevant issues when they explained the relationship between “Si”, “Lü” and “Rui”.

This brief description of some aspects of the history of Chinese philosophy shows that ancient Chinese scholars attached great importance to the study of reasoning and questioning. "Inquiring minutely", "thinking carefully" and "discerning clearly" are important parts in learning that Chinese education has actively advocated since ancient times. These parts had played a positive role in the development of the Chinese education throughout history. To this day, the educational concepts of "inquiring minutely", "thinking carefully" and "discerning clearly" have always been honored by the Chinese people. In this regard, there is considerable evidence that critical thinking has a historical tradition in Chinese culture.

2.2.3 Comparison of ancient learning theories in China and critical thinking theories in the West

2.2.3.1 The common ground

One major area of common ground between ancient Chinese thinkers and the western tradition is the importance of scepticism. Confucius regarded scepticism to be absolutely prerequisite to learning. Mencius even believed that if you fail to critically examine the information you are given, it would be better for you not to have that information. For Zhang Zai (1020-1077), scepticism allows openness and creativity in rejecting old ideas and embracing new ones. Lu Jiuyuan (1139-1192) related scepticism with progress. The central importance of scepticism in classical Chinese learning theories is stated perhaps even more

explicitly than by western thinkers, such as: Dewey (1910) who points out that people should firstly question a problem in reflective thinking. Glaser (1941) also states that critical thinking requires a questioning attitude in his theory. Nappi (2018) conducted a study which confirmed the strong relationship between higher level questioning and the development of critical thinking.

Another link between ancient Chinese thinkers and the western critical thinking theories is self-regulation. Xunzi (310-235 BC or 314-217 BC) believed that a person who self-examines themselves frequently will obtain knowledge and make few mistakes. Critical thinking theory of Paul and Elder puts emphasis on self-regulating cognitive activity. Zhu Xi's (1130-1200) idea of probing the truth can be related to Paul's strong sense of critical thinking. Halpern and Facione both advocate metacognition to guide and evaluate thinking.

Another important common ground between ancient Chinese thinkers and the western tradition is the importance of making reasonable judgment. Confucius 'The Book of Rites' said: "We need to learn extensively, inquire minutely, think carefully, discern clearly and implement earnestly". "discerning clearly" bears the meaning of logical analysis and reasoning. Zhu Xi strongly supported that "Discerning clearly" makes the knowledge distinct and the truths clear. Discerning clearly has more important position in ancient Chinese thinking than making reasonable judgment in western critical thinking, such as: Ennis, Siegel and Facione hold that the major components of critical thinking are on the analysis and clarification of argument, as well as the evaluation of assumptions and inferences.

2.2.3.2 The differences

Firstly, Chinese critical thinking takes 'harmony' as a precondition (Luo, 2002). One of the goals of higher education in the West is to cultivate students' critical thinking skills and tendency (Facione, 1990). Developing students' critical thinking is not regarded as an important goal in higher education in China (Luo, 2002). Master Yu said: "The most precious fruit of Ritual is harmony. The Way of the ancient Emperors found its beauty in this, and all matters great and small

depend upon it" (Analects of Confucius Vol.1, translated by Hinton in 2004, p.22). In the Chinese value system, harmony is a precondition for the development of critical thinking. Building a harmonious society is highly promoted by the Chinese government, which may prioritise the elimination of conflict and differences. In China critical thinking has been carried out without impeding or damaging harmony. An emphasis on harmony may weaken critical thinking in the views of westerners.

Secondly, understanding and showing sympathy are important in critical thinking in China. When discussing critical thinking, western thinkers also use empathy as an element of the tendency of critical thinking. People in the west who focus on individuals are different from relationship-oriented Chinese (Garcia et al, 2014). The Chinese tend to view that criticism with an emotional and affectional bond to others can effectively improve critical thinking. It is necessary to express criticism in a moderate way in building a harmonious society (Luo, 2002). It is not enough to consider from other people's perspectives, we also need to learn to care for others, which is an important basis to carry out criticism in China. Therefore, critical thinking education in China needs to teach empathetic ability – the ability to understand and empathize the feelings and emotions of other people. One proper goal of education in China is not merely to teach people the skills in winning debates and proving themselves to be right, but also to consider the emotions of students. Critical thinkers in China also need to relate to the situation of others, understand the feelings of others, also sympathize with the needs and wishes of others. The master (Confucius) said: "What the noble-minded man seeks, is in himself. What the mean man seeks, is in others" (Analects of Confucius Vol.15). People should question themselves rather than criticize others. Critical thinking in the West also includes self-reflection or metacognition, but it does not stress the priority of self-criticism.

Thirdly, critical thinking in China should be balanced with respect for authority. When Lord Meng Yi (student of Confucius) asked about honoring parents, the Master said: "Never disobey" (Analects of Confucius, Vol 2). Confucian philosopher Xunzi (313 BC - 238BC) created a famous philosophical expression which students learned by heart for over two thousand years "tian – di - jun - qin -

shi" (tian (heaven) - di (earth) – jun (sovereign) – qin (parents) - shi (teachers) (Xunzi, 3rd century BC). The widespread veneration of five entities 'heaven', 'earth', 'sovereign', 'parents' and 'teachers' play a huge role in people's life and education in China. Chinese critical thinking involves the relationship between teachers and students and the relationship between the authority and the non-authorities.

Fourthly, critical thinking in China has not been promoted at every stage of learning. The master said: "Thinking without learning is perilous" (Analects of Confucius, Vol 2). In the early stage, the task of students is to learn about things. It may be dangerous to emphasize critical thinking. Only after learning about the true value of things can they try to critically examine those things. If students don't have a good grasp of the learning materials, it is not necessary to encourage them to make critical evaluation. However, Westerners believe that critical thinking can achieve good development if it can be applied to every stage of the learning process.

Due to the influence of Chinese cultural tradition, China has its own characteristics in politics, economy, science, population and the education system which have jointly formed a unique cultural background. There will certainly be some cultural obstacles for the critical thinking movement, which originated from the western cultural background, to develop under the Chinese cultural background. However, this is not to say that the movement of critical thinking is only inclusive to the West and that it is incompatible with Chinese culture. It only means that in promoting the movement of critical thinking in China and cultivating critical thinking of its social members, more effort may be required.

2.2.4 Power distance

Mulder (1977) defined power distance as the degree of unequal distribution of power between individuals with less power (I) and others with more power (O), of which "I" and "O" are in the same social system. Hofstede (1980) extended the concept of power distance which is the degree of the acceptance of unequal

power by people with less power in a social group or organization in a country. The inequality of power distribution exists in any culture, but its tolerance is different due to cultural differences (Hofstede, 1980). Hofstede (1986) divided power distance into large power distance and small power distance. In a society with large power distance, every member expects to maintain their proper status in society. Hofstede (1986) believed that in a large power distance society, a party with less power is subject to absolute obedience, and subordinates are more satisfied with the mode of command management. On the contrary, in the small power distance society, members of the society think that the inequality of power distribution should be reduced to the lowest point. In low power distance culture, members of the society expect more participation and reduce the importance of subordinates' absolute obedience to superiors. Superiors and subordinates believe that each other is essentially equal, but the tasks assigned to them are different (Hofstede, 1986). Power distance index is used to define the extent of the acceptance of unequal power by people with less power in a social group, organization and institution (Hofstede, 1986).

In the power distance index, China and the UK scored 80 and 35 respectively (Wang and Zhang, 2012). There is a big difference between China and the UK in the power distance index. China belongs to large power distance culture and the UK belongs to the small power distance culture. Chinese education is deeply influenced by Confucian thought and the imperial examination system. It pays attention to the role of example in learning and has the social climate of respecting teachers, and has the cultural background of large power distance. British universities attach importance to the cultivation of students' independent, critical and innovative abilities. The teaching process makes full use of dialogue and debate, and has the cultural background of small power distance. The subjectivity of students should be given importance, and the status of teachers and students is relatively equal (Wang and Zhang, 2012).

However, researchers questioned whether Hofstede's power distance index is reliable because it is based on the data from his two surveys of IBM employees (Gravels, 1986; Olie, 1995). IBM is just one company and it is likely that the values of its employees are in many ways different from those of the present

university students. Some researchers have claimed that Hofstede's research is too outdated for the young generation because of globalisation and the integration and development of culture (Jones, 2007). My research explores whether current young Chinese international students still have large power distance. If some of them have large power distance, how to help them to adapt to the British education system needs to be discussed.

2.2.5 Research on critical thinking in current China

Luo (2002) states that Chinese students who are influenced by their social and cultural environment are short of critical thinking. Zhao and Zhang (2017) point out that Chinese students rarely think deeply about other people's opinions and do not raise questions. Many scholars believe that "critical thinking absence" (Zhao & Zhang, 2017, p.57) is an obstacle for undergraduate students in high education in Chinese universities. In comparison with the UK, critical thinking has not been considered as an important goal in education in China (Tian, 2008). Two participant students of this research Student Li and Student Xue in my interviews expressed that they did not know critical thinking before they came to study their master's degree courses in the UK. I compared the characteristics expected of UK master's degree graduates with those expected of Chinese master's graduates. Data sources are the QAA master's degree characteristics statement and official documents from Zhejiang Gongshang University. In the QAA master's degree characteristics statement, master's degree graduates will "have a critical awareness of current issues and developments in the subject and/or profession; critical skills" and "the ability to reflect on their own progress as a learner" (QAA master's degree characteristics statement, 2015. p.3). In the documentation of assessment criteria for graduation dissertations for master's degree students from 2010 to 2019 in Zhejiang Gongshang University in China, the document gives the following criteria: "The dissertation shall demonstrate a correct, clear concept and rigorous analysis. The experimental data must be proven, use an appropriate methodology and have practical significance. The master's dissertation should contain original content and have new ideas based on the results of previous studies". Although use of critical thinking may be implicit in these criteria, it is not valued as highly as in the UK where higher

marks are specifically awarded for demonstrating critical thinking skills. The criteria they must meet differ, so Chinese international students may be unfamiliar with the concept of critical thinking when they come to study in the UK. However, Chinese international students are introduced, encouraged and required to apply the concept of critical thinking in their learning process in the UK. In the process of learning and adapting to the education in the UK for Chinese international students, how critical thinking is described and understood by Chinese international students and their lecturers in the context of a UK master's degree course needs to be explored.

2.3 The debate on the transferability of critical thinking

In the field of critical thinking research, there have been different views on the generalizability and transferability of critical thinking skills. There are views that critical thinking is a generic skill that can be taught as a skill in its own right and transferred from one situation to another. Others believe that critical thinking does not have generalizability and transferability, the critical thinking skills formed and developed in a specialist subject area can only be applied in that situation, and may not be transferred to different situations. The views of researchers on the generalizability and transferability of critical thinking may be categorised in three ways.

Some researchers think that critical thinking ability can be generalized and transferable. Dewey (1910) argued that thinking can be generalised and we have the capacity to apply knowledge to a new situation. "Only as general summaries are made from time to time does the mind reach a conclusion or a resting place; and only as conclusions are reached is there an intellectual deposit available in future understanding" (Dewey, 1910, p.212). Dewey (1910) argued that reflective thinking can be transferable. "A true conception is a moving idea, and it seeks outlet, or application to the interpretation of particulars and the guidance of action, as naturally as water runs downhill" (Dewey, 1910, p.213). Ennis (1989) also thought that critical thinking in different fields has similarities, and critical thinking can be generalized and transferred. In addition, some scholars regard that critical thinking acquisition can take place

independently and critical thinking skills are general skills which can be migrated between disciplines (Ennis, 1989., Paul, 1992., Siegel, 1992). The experiment carried out by Lockhart (1992) shows that critical thinking can be taught as a general skill and can be transferred from one field to another, but the effect of teaching critical thinking varies with other factors.

Another view is that critical thinking is not generalized and transferable. Some scholars believe that critical thinking skills are discipline-specific (McPeck, 1981,1990) and critical thinking skills are based upon expertise in specific subjects (McBurney, 2008). McPeck (1981) explained that critical thinking is relative to a specific discipline, and it depends on the deep knowledge of this discipline and the understanding of epistemology and content of this discipline. What can constitute an effective argument in this discipline, how people should apply the effective argument, and what is the standard of technical language used in this field are important factors affecting critical thinking skills in this discipline. A wide range of knowledge in a discipline is crucial for critical thinking in this discipline. However, critical thinking is different in different fields. It is useless to teach critical thinking without the content of disciplines (McPeck, 1981). There is no general critical thinking skill. Critical thinking cannot be taught as a specific discipline alone because different fields or disciplines have different standards (McPeck, 1981). For example, in the field of genetic modification, which is an area of controversy today, no matter what kind of critical thinking skills and attitude a person has, it is difficult for them to be a critical thinker without the relevant knowledge in the field of genetic modification. McPeck (1981) stated that the process of critical thinking is inductive. It needs to summarize the principles of critical thinking through the generalization of the contents and structures of specific disciplines. The inspiration from McPeck's view is that the importance of discipline knowledge and content cannot be ignored whilst critical thinking is discussed. Critical thinking should be acquired through a combination of discipline content (Swartz, 1988). Perkins et al. (2010) supports this view and states that each discipline has its specific reasoning method.

A third view is that the generalizability and transferability of critical thinking skills are based on different conditions. Smith (1953) stated that critical thinking has

common characteristics among different disciplines. Critical thinking is commonly valued across academic disciplines and critical thinking skills should be fostered in general education courses (Thonney and Montgomery, 2019). For example, a healthy scepticism is required in the field of Law, but also in Business. If these common characteristics of critical thinking are taught in different disciplines and situations, students can be expected to improve their thinking habits. Cargas, Williams and Rosenberg (2017) provided an approach to teaching critical thinking across disciplinary contexts and this approach can contribute to the transferability of critical thinking skills and dispositions.

It may, however, be argued that these three views are not completely in opposition to each other. Each discipline has a specific theoretical foundation, set of teaching methods and learning targets. It seems that knowledge and ability cannot easily be migrated to another discipline, but each discipline involves critical thinking and critical thinking skills can be developed through professional learning and the training of thinking specific to the discipline. It may be beneficial for university students to develop and apply critical thinking in the context of their own specialist subject area.

2.4 Critical thinking and academic writing

2.4.1 The current teaching situation in academic writing in China

Teaching culture refers to a long-lasting form of teaching tradition, thinking, values and habits. It is a classroom lifestyle of teachers and learners in the context of teaching (Li, 2012). Zhong (2002) thought that Chinese traditional classroom teaching culture belongs to a memorization type of teaching culture. The role of a teacher is to convey information to students. The role of students is to accept and store information (Zhong, 2002). Influenced by this teaching culture, students tend to acquire knowledge passively, rather than actively explore and evaluate the knowledge. In addition, teachers' teaching and students' learning aim at storing the contents of books in students' brains, and reproduce them in exams correctly. Therefore, teachers teach the content of books with little concern about the authority and value of the knowledge.

Students only need to memorize what teachers teach. Repetition and memorization become students' main strategies. Even trying to understand the content is to remember it more conveniently (Yang, 2003). A rote learning teaching culture belongs to a static, linear, closed classroom teaching culture which is short of vitality (Shen, 2009). Chinese current university teaching mainly belongs to this memorization type of teaching culture.

College English Curriculum Requirements were issued by Chinese Ministry of Education in July 2007. The teaching goal in the College English Curriculum Requirements is to cultivate students' English comprehensive application ability, especially the ability of English listening and speaking, which can help make students use English to communicate effectively in their study, work and social activities whilst enhancing students' autonomous learning ability to adapt to the needs of Chinese social development and international communication (Chinese Ministry of Education, 2007).The instrumentality of language is emphasized in the current College English Curriculum Requirements. The goal of College English teaching is to focus on the English comprehension skills. However, cognitive linguistics expresses that language ability is part of cognitive ability, and it interacts with society, culture, psychology and communication (Liu, 2009). Language is not only a tool for communication, but also a tool for people to understand and change the world, which is cognitive tool. The absence of cognitive development in Chinese foreign language education has made it difficult for Chinese foreign education to meet the needs of social development (Wu, 2009). In addition, college English teaching failed to carry out a deep, systematic and global perspective of knowledge and ideological content, so what to teach in college English is still a problem (Zheng, 2010). At present, Chinese college teachers have made remarkable achievements in teaching English language skills, but their achievement in cultivating students' critical thinking is not significant (Zheng, 2010).

The current teaching in academic writing in China mainly focuses on writing skills and structures and does not put the development of students thinking ability into an important position (Gu and Liu, 2006). The writing of some University students in China has a simple conception and lack of new ideas. The

contents may be quite empty, consisting mostly of a list of facts and short of in-depth analysis and reasoning (Wen and Zhou, 2006). In an empirical study of 120 different assignments from Chinese students of a BA in English, Wen and Zhou (2006) found that only less than a fifth of their written work had well-reasoned judgement, which are characteristics associated with critical thinking. There is a serious problem in cultivating students' critical thinking skills in their academic writing (Wen and Zhou, 2006). Tian and Low (2012, p.299) pointed out that: "the training that Chinese students received in China may not have prepared them well for academic writing at an advanced level in the UK". How Chinese international students demonstrate critical thinking in their academic writing at an advanced level in the UK warrants further exploration.

2.4.2 The relationship between language and critical thinking

2.4.2.1 The influences of languages on thinking

After comparing various written languages in the world, Hall (1976) divided the different languages into high context languages with high dependency on the context and low context languages with lower dependency on the context. In a high context culture, the communications mainly depend on context and non-verbal communication. On the other hand, in a low context culture, the meaning of words and phrases is clear and straightforward (Hall, 1976). Although Hall's theory was critisised by Cardon (2008) as lacking empirical validation, Cardon (2008, p.423) concludes that "should not necessarily be construed as a failure of the theory". In Hall's opinion, Chinese is a language with a high degree of contextual constraints, where the meaning of a sentence depends on the meaning of the context. English, on the other hand, is a language with low contextual constraints, that is, most of the information is contained in explicit codes such as words (Hall, 1989). For example, in *Seeking out Hermit without Success* written by Jia Dao (779-843, a renowned ancient Chinese poet), "Ask a child under a pine tree. Reply is that his master is away gathering medicinal herbs. Though in this mountain, the deep clouds hide his master's whereabouts" (Translation of the poem of Seeking out Hermit without Success). There is no subject in the whole poem. Who is asking? Who is

answering? Who is in this mountain? Who does not know the whereabouts of whom? Answers to these questions cannot be found from a single sentence. However, throughout the poem, we can know that it's the author of the poem asking, the child answering, his master is in the mountain and it is the child who does not know the whereabouts of his master. Shen (1988) also expressed a similar view. He used a pair of concepts in Chinese and Western painting theory of the 'focus' perspective and 'cavalier' perspective to explain the difference between the Chinese language and English language. Chinese ink-wash painting painters change their focus constantly whilst western oil painters focus on one point. Shen (1988) stated that there are two reasons why the pattern of Chinese sentences has features in common with the cavalier perspective. Firstly, the pattern of Chinese sentences has a fluidity, which takes a sentence as a unit with multiple points. It is like the pattern of a Chinese landscape painting where one can take every step and see every scene within the landscape. Secondly, the pattern of Chinese features its integrity, which does not appreciate the self-sufficiency of the individual language unit but focuses on the setoff among the meaning, logic and rhythm. In this regard, the values of the language and grammatical structure of a single phrase can only be confirmed in the pattern of the whole sentence (Shen, 1988). Borrowing a term from the layout of the Chinese landscape painting, it is 'a bird's eye view'. It needs to grasp the horizontal view (seeing distant mountains from near mountains), deep view (seeing the rear of the mountain from the front of the mountain) and high view (seeing the peak from the feet of the mountain) from an overall perspective (Shen, 1988).

The Chinese thinking pattern of looking at things from overall perspective emphasizes the understanding of integrality and uniformity of the nature and human society, that is, the concept of the entirety and the universal connection. In the Chinese thinking pattern, people tend to see the wholeness first and the parts later. If people give attention to the wholeness of things, the parts are easily neglected. Its comprehensiveness may be based on a fuzzy and intuitive basis, which sees the forest and views vaguely the trees. On the contrary, the traditional Western thinking pattern is that it pays more attention to analysis than synthesis, which sees trees rather than the forest (Zhang, 1999). As Zhang

(1999) stated that the traditional Chinese thinking pattern features a holistic thinking, with its disadvantages in having general thinking, emphasis on intuition, and contempt for analytical methods and practical observation.

Dewey (1920) proposed that language and thinking are closely related to each other. Language can be the vehicle of thinking. Whilst children are learning a new language, they not only learn the language itself but also enter a wholly new world. Dewey (1920) emphasized that although language is not thinking, it is essential for both communication and thinking.

The discussion of the relationship between thinking and language provides some guidance for the analysis of the relationship between critical thinking and language. In order to explore the influence of native language and non-native language with critical thinking skills, Floyd (2011) used a small scale experimental approach, in which a split-test version of the Watson Glaser critical thinking appraisal test is presented to two groups of Chinese students. One group took an English section of the test before a Chinese section. The second group took the test in Chinese first, and then completed the English section. The higher performance of the second group led Floyd (2011) to argue that critical thinking is more difficult in a second language. Her findings indicate that language ability is one factor affecting critical thinking skills. This raises a question of whether language ability is one affecting factor for Chinese international students who are studying for a master’s course and have already achieved a high IELTS (International English Language Testing System) language test result.

2.4.2.2 Thinking in Chinese and writing in English

Research on second language writing has been increased over the past years but most of this focuses on the comparison of similarities between first language writing and second language writing, which may give little attention to the characteristics of second language writing (Silva, 1993). There are some differences between first language writing and second language writing. For instance, bilingual thinking is a peculiar phenomenon in second language writing.

It has been found that learners who are not used to write in a second language and learners whose second language level is quite low tend to depend on thinking in their first language (Lay, 1982). Kobayashi & Rinnert (1992) invited 48 Japanese university students to estimate the percentage that they use their thinking in Japanese in English writing. The results show that 17% of the research students think in their first language for 75% of their writing process. 48% of the research students think in their first language for between 50% to 75% of their whole writing process. 27% of the research students think in their first language for between 25% and 50% of their whole writing process. Only 8% of the research students think in their first language for under 25% of their whole writing process (Kobayashi & Rinnert, 1992). Liu (1997) used Think Aloud Protocol with the thinking process of ten high school students and two university students whilst they were performing a writing task to analyse the content of visual images. The quantitative analysis shows that 92% of the research students use thinking in their first language to analyse and judge whilst understanding the pictures, and 60% of their writing was generated from thinking in their first language. Bilingual thinking is a significant characteristic in second language writing (Wang and Wen, 2002). The cultural differences between English and Chinese modes of thinking have negative influences on Chinese learners in their English writing (Pengsun and Aimiao, 2013).

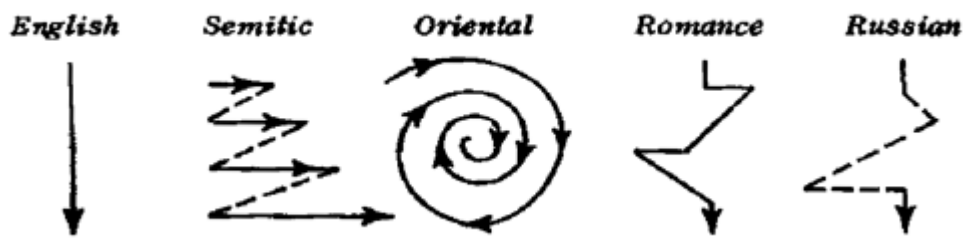
Liu (1997) stated that first language has three intermediary functions in second language output, which are comprehensive intermediation, retrieval intermediation and decision intermediation. Wang and Wen (2002) found that thinking in first language had negative correlation with the assessment results of second language writing. However, little research has been done to explore the relationship between thinking in first language and avoidance strategy in the output of second language (Li, 2013). Avoidance strategy refers to the phenomenon that second language learners prefer to use simple phrases and structures rather than abstruse or complicated phrases and structures in second language speaking and writing (Kleinmann, 1977). Avoidance strategy can be a choice of learners and it involves mental activities (Liu, 2007). Avoidance strategy is a common phenomenon in second language writing. Tarone (1981) pointed out that current studies on avoidance strategy in second language

writing analysed reasons through questionnaires and the analysis of writing content and these research methods are insufficient to understand the mental activities of learners. This dissertation adopts interviews to explore whether thinking in first language will cause avoidance strategy in second language writing.

2.4.3 Kaplan's contrastive rhetoric

Kaplan (1966) pointed out that every language and culture has a unique rhetoric. Logic and rhetoric are interdependent and in particular language thinking order and grammar are interrelated. Kaplan (1966) found that students from different cultural backgrounds have different ways of organizing paragraphs in texts after analysing the compositions of about 600 second language learners (Connor, 1996).

Paragraphs of English academic writing often start with thematic sentences and then followed by a series of sub points around the topic sentences which are used to develop the central idea. Or paragraphs start with a series of examples, and end with the theme sentence. The organization and development of discourse are linear. In Arabic, the paragraph organization is based on a series of affirmative and negative parallel structures, which is suitable for almost all Semitic language. In eastern languages, the organization of texts is often regarded as circuitous. People tend to make indirect statements on the theme from many angles and the development of paragraphs is circular thought pattern (Kaplan, 2001).



Cultural thought patterns (cited in Kaplan, 1966. p.15)

Kaplan (1987) thinks that the way of text organization is characterized by language and culture. It also reflects people's thinking mode. People who come

from different cultural backgrounds use different textual structure and this is the result of negative transfer of cultural thinking mode (Wang and Liu, 2001). English and its related thinking model developed from the Anglo-European cultural model. The order of thought expected in English is essentially the Aristotelian order (Kirkpatrick, 1995).

Kaplan's study caused significant repercussions in the development of contrastive rhetoric. However, some of the inadequacy of Kaplan's research has been pointed out by other scholars. Hinds (1983) considered that Kaplan regarded Chinese, Thai and Korean as Oriental languages, ignoring the differences among these related languages. Matalene (1985) concluded that Kaplan seems too ethnocentric and English writing is optimised. Mohan and Lo (1985) stated that Kaplan's analysis ignores many variable elements in the process of the cultivation of language ability and writing ability. Raimes (1991) criticized Kaplan that first language transfer can only have negative influence on second language writing. Kaplan (2000) acknowledged that the research of 1966 compared native speakers' writing with second language writing without considering titles, writing styles and length, which is ethnocentrism. This research examined other language writing only from the perspective of English language writing, not examining English from the perspective of other languages (Kaplan, 2000). The previous "doodles" intended to put cultural rhetoric as a modular thing (Kaplan, 2000). This classification is too simple and subjective. Rhetorical difference does not necessarily reflect the differences of thinking mode, but simply reflects the differences among writing in different cultures. There is not only one style of text organization in every language. There is no language or culture which can be simply classified into one or two schematic structures. There are differences in the form, type or style of the writing which are preferred by different languages or cultures (Hyland, 2019).

2.4.4 Chinese rhetorical convention: 'qi-cheng-zhuan-he' pattern:

The typical embodiment of Chinese thought pattern in Chinese writing might be the discourse pattern of 'qi-cheng-zhuan-he' in argument (Mi, 2001). 'qi' means introduction, 'cheng' means development or elucidation of the theme, 'zhuan'

means transition to another point, ‘he’ means summing up (Cao, 1983). The structure can be explained in a more specific way.

‘Qi’ is the introduction or the beginning part.

‘Cheng’ is the connecting part between the introduction and the following text.

‘Zhuan’ is the turning point where the writer turns to discuss what they are going to conclude in the final part.

‘He’ is the concluding part. The writer gives the main ideas and concludes the whole writing.

There is a poem witten by Li Bai (701-762) who was a Chinese poet in the Tang Dynasty which can illustrate ‘qi-cheng-zhuan-he’ pattern.

Thoughts on a Tranquil Night

The ground before my bed presents a stretch of light, (qi)

Which seems to be a tract of frost that’s pure and bright. (cheng)

I raise my head: a lonely moon is what I see. (zhuan)

I stoop, and homesickness is crying loud in me. (he)

(Translated by Zuo and Liu, 2010)

The first line is the introduction, which is about the moonlight. The second line is the connecting part which depicts the moonlight. The third line prepares a turning point from the moonlight to the writer’s feeling. The last line gives the conclusion. It is clear that ‘zhuan’ is the core part of this poem. The reason is probably that Chinese writers, following Confucianism, do not like the structure which is too direct (Zhou, 2001). Chinese rhetorical pattern is circular. One article is regarded as wonderful because reading the article is like walking through winding paths in a mountain. Ma (2000) states that one article which has many twists and turns can show the various aspects of the contradiction, with comprehensive analysis and thorough reasoning.

There are two characteristics of the structure of Chinese articles. One is to stress the twists and turns, and the ‘qi-cheng-zhuan-he’ pattern emphasizes ‘zhuan’. Another characteristic is the exploration of additional factors. In the article, the writer may put aside the topic and start talking about something which may not relate to the topic. Sometimes there is no need to write the content directly

related to the main idea (Cai, 1990).

The relationship between ‘qi- cheng- zhuan’ and ‘he’ is interdependent and mutually beneficial, with a dialectical relationship. Huang (2010) pointed out that ‘qi-cheng-zhuan-he’ is not only the writing structure in China, but also is a way of thinking. Yang and Yang (2010) stated that the Chinese ‘qi-cheng-zhuan-he’ pattern and the English problem-solving pattern can be regarded as two variants of the same discourse patterns. Chinese students’ awareness of these rhetorical differences should be considered as an important factor in their academic writing in English.

2.5 Factors contributing to the development of critical thinking

2.5.1 Teaching pedagogies in the development of critical thinking

Using appropriate teaching pedagogies can help the development of critical thinking (Carroll, Keniston and Peden, 2008). Using a dialogue method, which is also known as Socratic dialogue method, teachers and lecturers ask questions, stimulate students to explore the question from different perspectives, apply their own concepts to understanding the question, enable them to draw and test their conclusions, consider other theories or explanations, and try other ways of solving the problem. Teachers and lecturers avoid making direct judgements on students’ opinions, but let students evaluate their opinions by themselves. Students collect and access the necessary information, and then form their own concepts and conclusions (Saran and Neisser, 2004).

Carroll, Keniston and Peden (2008) proposed a number of ways to integrate critical thinking into course content. To encourage students’ curiosity, they designed question activities and the questions involved in question activities are often inspired by books or lecturers and answers are not given (Carroll, Keniston and Peden, 2008). Another way they proposed is using debates. Debates can help with developing students’ critical tendency (Carroll, Keniston and Peden, 2008). One goal of debates in critical thinking is to encourage students to look at problems from a variety of angles and encourage students to criticize the merits

and demerits of the various perspectives of the answers. Teachers should encourage and require students to debate in class, and try to have students regard debates as an interesting and relevant method (Carroll, Keniston and Peden, 2008). The current research is exploring what teaching pedagogies contribute to the development of critical thinking skills especially from the perspective of Chinese international students.

2.5.2 Feedback in the development of critical thinking

The process of critical thinking includes metacognition and self-regulation, which implies that thinkers need to use critical thinking to monitor, adjust and amend their own thinking in the process. Flavell (1979) believes that metacognition is composed of three psychological components. One is metacognitive knowledge, which mainly includes the knowledge of the process and results of cognitive activities for people themselves or others; a second is metacognitive experience, which refers to cognitive experience and emotional experience accompanied by cognitive activities; a third is metacognitive monitoring, which takes the cognitive activities and carries out conscious supervision, control and adjustment of these activities (Flavell, 1979). In academic writing, using metacognition strategies, students are clearly aware of what to write, how to write, and what factors influence writing. In addition, students' written expression can be greatly improved under the guidance of teacher feedback (Hu, Ma & Du, 2017).

In education, feedback can demonstrate that teachers compare the present learning performance of students with the teaching goals, and provide feedback for them to improve, change or rebuild their knowledge system through feedback (Butler and Winne, 1995). Keh (1990) interpreted feedback as comments, discussions and constructive opinions from readers. In the teaching of writing, feedback refers to the information that readers convey to the author to make adjustments. Arndt (1993) emphasized that the role of feedback should not be ignored in the successful writing of an essay. However, the impact of feedback on learning and achievement can be either positive or negative depending on the type of feedback and how it was given (Hattie & Timperley, 2007). Whether teachers' feedback should focus on language use or thought content, and which

type of feedback can have a better effect have frequently been the focus of researchers in the area of second language writing (Ferris, 2004.,Goldstein, 2004., Truscott, 2004). Some researchers have pointed out that feedback does not reduce the language errors of learners' writing (Kepner, 1991; Truscott, 1996). The reason they put forward is that students need long-term language input and output activities to internalise language and grammar rules (Truscott, 1996). Other researchers have claimed that students hope that teachers and lecturers not only point out problems in language use, but also give evaluation and suggestions on the writing content in written feedback (Radecki & Swales, 1988; Zacharias, 2007). Markers of writing assignments often can decide the emphasis of written feedback according to the actual language level and teaching environment of writers, and can solve problems in writing through written feedback. No matter what form of feedback, mutual trust between teachers and students is a basic premise (Goldstein, 2006; Hyland & Hyland, 2001).

Although most students approve of written feedback from teachers, the impact of written feedback on the development of students' writing ability is still unclear (Hyland & Hyland, 2006). Some research found that students were more concerned about and applied feedback in the process of their writing rather than the end (Ferris, 1995, 2006; Hyland & Hyland, 2006). Some feedback, such as feedback on grammar, spelling, punctuation, specific questions and requirements is more likely to be implemented in the revision of writing by students (Ferris, 1997). In writing revision, students may neglect or misunderstand some written feedback from teachers. Students may understand but do not know how to implement some written feedback (Conrad & Goldstein, 1999; Ferris, 1995; Hyland, 1998). Therefore, in the study of teachers' written feedback, we should pay more attention to how students accept and use teacher feedback in the process of writing (Conrad & Goldstein, 1999; Ferris, 2007; Hyland & Hyland, 2006). In order to further understand the effect of feedback on the development of students' critical thinking, this study explores the response to feedback from the eleven participant Chinese international students and the views of their lecturers.

2.6 Critique of critical thinking testing and measurement

Critical thinking assessments and tests and their results are used to evaluate students' critical thinking abilities. Critical thinking involves so many factors, skills and dispositions, so it is very difficult to design a reliable test.

2.6.1 The 'thinking' characteristic of critical thinking

First of all, thinking is a dynamic process. From a macroscopic perspective, thinking, as a natural ability of human beings, is always in the process of movement, growth and development. From a microscopic perspective, all thinking is a process, including a series of stages of information transformation (Halpern, 2014). Influenced by factors such as time, experience, knowledge and information, every thinking process including critical thinking may have differences in duration, speed, depth and breadth. Secondly, thinking is multi-capacity. According to the theory of multiple intelligence (human intelligence is not a single general ability), intelligence includes linguistic, logic-mathematical, musical, bodily-kinesthetic, spatial, interpersonal and intrapersonal, and people differ in the dimensions of intelligence composition (Gardner, 1999). Some people may be good at musical intelligence but weak in logic-mathematical intelligence. One critical thinking scale is very difficult to cover several different types of intelligence. The dynamics and diversity of thinking indicate that the test scores obtained from critical thinking tests can be only a theoretical score or an assumed value, and no single test can completely and accurately measure the actual critical thinking ability of examinees (Watson & Glaser, 2008).

2.6.2 Reliability and validity of critical thinking tests

2.6.2.1 The reliability of tests

Ennis (2008) states that there are a limited number of specialised tests for critical thinking ability and fewer authoritative ones. A limited number of authoritative tests and test questions are likely to be available and provide examples of teaching and practice for the examiners and examinees. Some examinees may

have practised the questions beforehand. Therefore, the test questions learned or practised by examinees before the assessment are not able to reflect the true level of the examinees, which makes the whole test lose credibility. When critical thinking tests are used, not only the reliability of the test results should be considered, but also the reliability of the test questions.

In addition to the limited number of authoritative tests, the test reliability is inevitably affected by many factors, such as the purpose of examiner or the physiological and psychological state of examinees. These factors may cause uncertainty in interpretation of answers. The personal experiences, beliefs, prejudices and emotions of an individual examinee may also affect the results of thinking (Cottrell, 2005). In the test, the same answer may not represent the same level of thinking; different answers may not represent the differences in thinking level. Therefore, it is difficult to determine the true level of critical thinking in the examinee's answer. Thinking varies from person to person. There are numerous differences between people. Even if a test can exclude factors such as culture, course content, race, language and gender, it may not accurately measure a person's thinking level.

2.6.2.2 The validity of the context

Many critical thinking tests are presented in written form. Language and context are inseparable. Any language expression has its specific context. It contains both the linguistic information presented literally and the non-linguistic information. Due to the influence of culture, psychology, experience and other factors, each examinee may have different understanding of the context involved in the items of the test. If the consistency of the examinees' interpretation of the test items is not guaranteed, the reliability and validity of the results of the scale may not be guaranteed. The validity of the context is an important factor in considering critical thinking testing (Ennis, 2004, 2008).

In the use of the test, the validity of the context may be considered from the following three perspectives: Firstly, language makes it possible to measure thinking level. Language is not only the tool and carrier of thinking, but also the

medium of thinking communication (Du & Li, 2015). Vygotsky (1986) states that direct communication between the minds of different people is impossible, not only physically but psychologically. Communication can be achieved by circuitous means. Communication must firstly pass through meaning and then through words. Secondly, the relationship between language and thinking is also a dynamic and developing process, which has undergone a reciprocating movement from thinking to speech (Vygotsky, 1986). Thirdly, language and thinking are two different abilities. Language does not always accurately express the speaker's thinking content. Therefore, when the thinking test is conducted in the form of language, it includes the language expression ability of the examinees, and is also influenced by the comprehension and expression ability of the test designers and examiners.

Due to the influence of culture, psychology, experience and other factors, each examinee may have different understanding of the context involved in the items of the test. Problems in the context inevitably affect test design, which may cause the test to be unreliable. The examiners may provide more detailed contextual information to solve the problems in the context. However, the increase of contextual information may lead to more different interpretations, which will result in a further decrease in reliability and validity of the test. There is no effective solution to the validity in the context of critical thinking tests. There may be no measuring tool which can accurately and effectively determine a person’s critical thinking. Although Niu et al. (2013) state that using a standardized measuring tool to test critical thinking has been widely used by researchers, I decided not to use the standardized critical thinking tests because we need to consider the reliability of critical thinking test questions and the validity of context. It may not be possible to test examinees who are studying master’s degree course using the current critical thinking tests, especially towards Chinese international students.

2.7 Empirical studies on critical thinking with Chinese students

Tian (2008) from York University completed a PhD dissertation in education which explores critical thinking skills in academic writing using Chinese students

as the research participants. This research had two stages. The first stage took mixed methods with questionnaires and interviews at a UK university. The second stage used a case study at a Chinese university. She carried out interviews, classroom observations and analysis of writing samples. Tian (2008, p.101) stated that: “the training that Chinese students received in China may not have prepared them well for academic writing at an advanced level in the UK”.

My research also focuses on Chinese students’ critical thinking in academic writing, but my research is very different from Tian’s research in aim and research methodology. Firstly, the aim of Tian’s research is “to examine the influence of previous learning context(s) at undergraduate level on the application of critical thinking to academic writing by Chinese students studying in the UK on higher degrees” (Tian, 2008). The aim of my research is to explore the development of critical thinking in academic writing by Chinese international students studying their master’s in the UK and what factors contribute to their development and how they might use critical thinking in a Chinese context. Secondly, Tian’s research has two stages, the first is in the UK and the second is in one university in China. In the questionnaire only forty students responded, and “this makes generalization of the findings to a larger scale very difficult” (Tian, 2008). In Tian’s case study in China, the research participants were not ultimately chosen by the researcher, but by her colleagues. They chose staff and students whom they knew, which made it possible that the sampling process could have biased the outcomes. Purposive sample (Gall, Borg & Gall, 1996) will be used to choose focal participants in my research. The methodology in my research is case study with qualitative data. I do not intend to use a questionnaire because the number of focus participants is less than 30, critical thinking cannot be easily explored by answering a questionnaire with yes or no answers or a Likert scale (Wuensch, 2005) and learners’ individual characteristics and initiative in the learning process can be better explored by using case study methodology rather than using one or two questionnaires.

Researchers use quantitative method of standardized tests to verify the effectiveness of critical thinking, which is relatively common in empirical studies on critical thinking skills in high education in China. Li (2011) explored the

relationship between cultivating readers' awareness and critical thinking skills in academic writing of second year university students (N=24). Li (2011) used special exercises such as making concept, layout and identifying logical fallacies to do teaching intervention. Questionnaire and interviews are the main methods used to collect data. Learners reported themselves that they made significant progress in three areas, which were logical thinking, readers' awareness and writing norms, but found difficulties in terms of choosing topics, gathering materials and language expressions (Li, 2011). Gui et al. (2011) who described the training mode called STUDIO in promoting critical thinking skills. STUDIO means situated, thinking, universal, debating, improvisation and optimization. This research conducted a survey using quantitative research methodology. The effect of this training mode was demonstrated by the data from questionnaire results.

In empirical studies in critical thinking carried out by Chinese researchers, using questionnaires is the mainstream. However, the answers of the questionnaires are there for the participants to choose yes or no, or a Likert scale (Wuensch, 2005) even though the participants do not know what critical thinking is. The difference between questionnaires and qualitative interviews is that qualitative interviews are a confidential discussion about critical thinking with no right or wrong prescribed answers.

2.8 Chapter summary

Although there may not be a single universally accepted definition of critical thinking, there is an increasing consensus on many aspects of the complexity of critical thinking. This means that this research, by analysing the perspective of students and lecturers in a specific context may contribute to a consensus in some areas of understanding. A synthesis of the different ways of understanding critical thinking in the table in Appendix 4 will be used to carry out this analysis. This integrates the main characteristics from Socratic dialogue method, John Dewey, Glaser, Ennis, Paul and Elder, Siegel, Halpern, Facione and ancient Chinese thinkers.

There is a significant difference between China and the UK in the power distance index. There are differences in the form, type and style of the writing preferred by different languages or cultures. Every language and culture has its own unique rhetoric. “There has been a lack of attention to and empirical research into the training that Chinese university students receive concerning academic writing, and their application of argumentation and critical thinking to academic writing is thus largely unknown” (Tian, 2008. p.243). When Chinese international students study their master’s degree in a UK university, how they demonstrate critical thinking in academic writing needs to be explored.

Researchers have realised that the factors which affect Chinese international students’ critical thinking are complex, such as their level of the second language and socio-cultural factors. Using appropriate teaching pedagogies can help the development of critical thinking. Although most students approve of written feedback from teachers, the impact of written feedback on the development of students’ writing ability is still unclear. “We know very little about individual student variables that contribute to the ability to think critically” (Halpern, 2001. p.284). Learners’ individual characteristics and initiative in the learning process are rarely considered and there is still a research gap in case study in critical thinking (Halpern, 2001. Niu et al, 2013).

Research methodologies used by Chinese researchers in research which has been conducted in China are mainly based on critical thinking tests with prescribed answers to explore learners’ critical thinking development. From the perspectives of the ‘thinking’ characteristic of critical thinking and the reliability and validity of critical thinking tests, there may be no measurement tool which can accurately and effectively determine a person’s critical thinking. The research methods of the development in critical thinking need to be further diversified.

This research adds to previous studies on the development of Chinese international students’ critical thinking in academic writing while they are studying for a master’s degree in the UK. How this development of their critical thinking contributes to its future application of critical thinking is examined. It

makes a new contribution to existing research of the factors which contribute to the development of critical thinking. In methodology, this research used case study in qualitative research to break through the dependence of Chinese researchers on critical thinking tests and measurement, as will described in the next chapter.

2.9 The conceptual framework

2.9.1 Self-regulated learning and critical thinking

In the UK Quality Code for High education (2014), it requires that “holders of master’s degree will be able to demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level (QAA, 2014. p.28)”. “And holders of master’s degree will have the independent learning ability required for continuing professional development (QAA, 2014. p.28)”. The abilities of self-directed and self-regulated learning are strongly required in a master’s degree course in the UK. However, these abilities are not straightforwardly for students to acquire them (Forbes, 2018).

Zimmerman (2002) states that self-regulation is defined as the process that people use to stimulate and maintain their thoughts, behaviours and emotions in order to achieve their goals. Bandura (1986) expresses self-regulated learning as setting goals and mobilizing the efforts and resources needed for achieving the goals. Woolfolk (2010) defines self-regulated learning as a learning view that is skilled and can be used to analyse tasks, set goals and plan how to achieve them, use skills and make judgments on their learning progress. People self-regulate their own cognition, motivation and behaviour, and act as an intermediary among people, environment and achievement (Pintrich, 2004). Learners do not passively accept the stimulation and influence of the environment. Their behaviours are the results of the interaction of subjective factors and environmental factors. People have the opportunity to choose and change the environment, and they can also adjust their future behaviour through reflection. Critical thinking has the function of self-regulation and self-monitoring

(Paul, 1993). The ability of self-regulation and self-monitoring of critical thinking determines the development of students' self-awareness and the ability to plan, adjust, monitor and evaluate.

2.9.2 Students' learning and critical thinking development

On the basis of self-regulated learning, I put forward a conceptual schema of influencing factors on the development of Chinese international students' critical thinking ability.

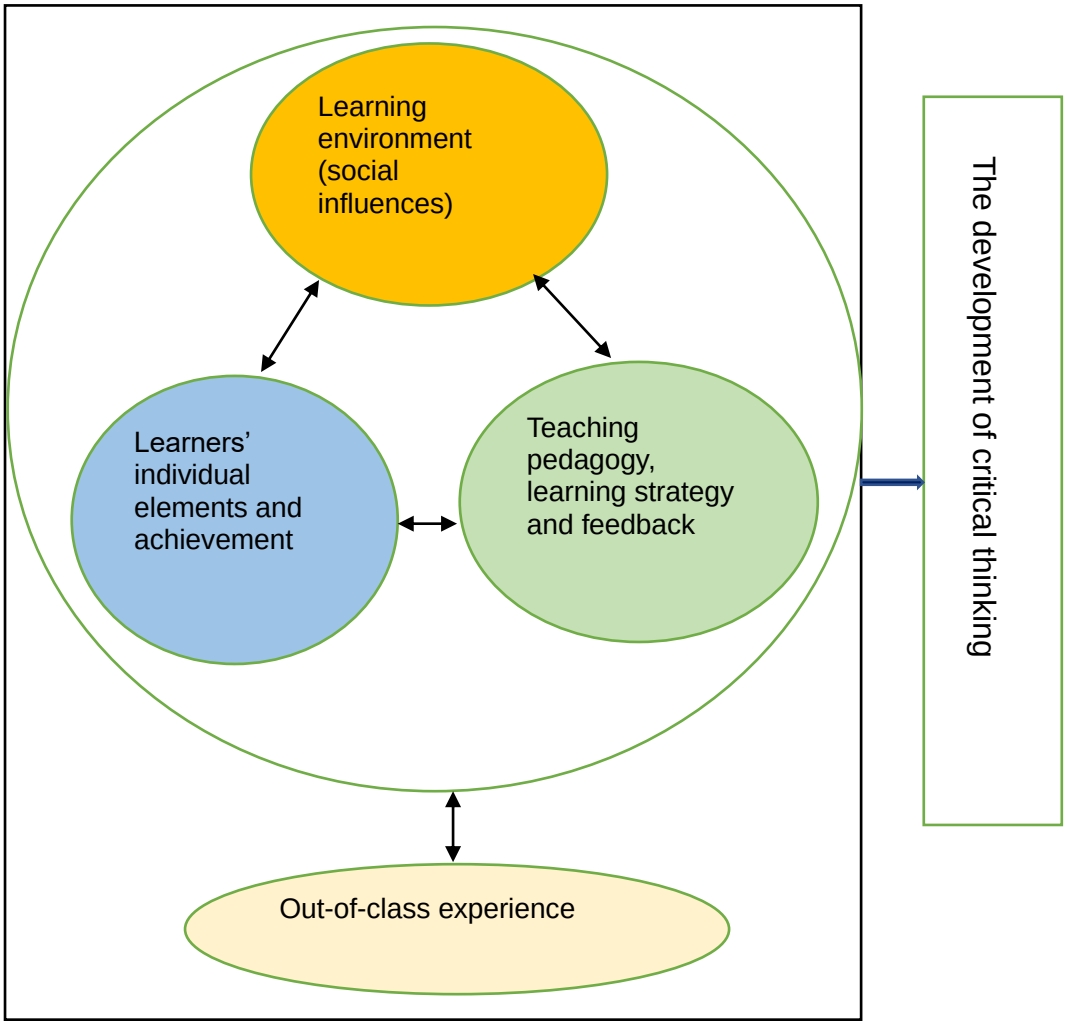


Figure 2 Influencing factors on the development of Chinese international students' critical thinking

The large rectangle in the figure represents the overall environment of university professional learning in the UK. Its lower end is out-of-class experience, which

has an impact on the development of learners' thinking. The main research of this study is embodied in the self-regulated learning process located in the large upper circle, based on the three-dimensional interaction between 'learning environment (social influences), 'learners' individual elements and achievement' and 'teaching pedagogy, learning strategy and feedback'. Learners exert their subjective initiative, inspire motivation and belief, make plans, monitor and adjust actions, evaluate learning achievements, and make attributions and carry out reflection in specific learning situations. In this dissertation, the factors that affect the development of learners' critical thinking are analysed under the guidance of the above theoretical framework.

Chapter Three: Research methodology

There were four research questions in this research:
1) How is critical thinking described and understood by Chinese international students and their lecturers in the context of a UK HEI (Higher education institution) master's degree course?
(2) How do Chinese international students demonstrate critical thinking skills in their academic writing on this UK HEI master's degree course?
(3) What factors contribute to the development of critical thinking of these Chinese international students?
(4) How do Chinese students describe and understand the development of their critical thinking skills on the way they might solve a named professional challenge when they return to China?
To address these questions, research was carried out from the perspective of the students and their lecturers throughout the entire process.

3.1 Research paradigms

Three major paradigms in the study of humanities and social sciences are positivism, interpretivism and critical theory (Bredo & Feinberg, 1982). Careful consideration was given to the choice of the appropriate paradigm and how to explain the philosophical beliefs which influenced the way the research should be conducted.

Positivism is based on empiricism and holds that social phenomena exist objectively and they are not influenced by subjective value factors in the relationship between subject and object. The researcher can gain the knowledge of the object through the operation of a set of measurement tools (Chen, 2008). Positivism also holds that social phenomena should be perceived empirically and the truth of theory is verified by experience. Positivism follows the principle of natural science, and holds that there are logical relationships between phenomena (Bryman,2008). Research conducted with a positivist approach seeks to find these relationships and to demonstrate them scientifically through

rational tools (Chen, 2008). As a general rule, positivist studies take a deductive approach and test a hypothesis empirically and this paradigm makes use of quantitative research (Crowther & Lancaster, 2008).

Interpretivism holds that researchers' personal life experience, value and ideas have an influence on research. Researchers' own views and attitudes towards the research phenomenon can affect the presentation of research questions, the design of the theoretical framework, the selection and analysis of research materials and the interpretation of research results (Bredo & Feinberg, 1982). Interpretivism does not support the separation of subject and object, and holds that the relationship between subject and object is a process of mutual influence. Interpretivists emphasise that researchers explore issues deeply in the research field and work together with the research participants in the natural environment. Interpretivists also reflect on research methods they use and pay attention to the impact of the relationship between researchers and research participants (Chen, 2008). Interpretivism as a paradigm and research philosophy emphasises qualitative analysis over quantitative analysis.

Critical theory was developed by the Frankfurt school in the 1930s, which was influenced by Hegel's dialectical philosophy, Marx's political and economic criticism and Freud's subconscious theory (Geuss, 1981). This theory holds that people act as agents in society with thoughts and behaviours that are influenced more by ideology, cultural assumptions and the structures of the society in which they live rather than by their individual and psychological factors (Geuss, 1981). People may have no consciousness of these potential constraints or are controlled by some false consciousness due to different value systems, ideologies, social systems and historical developments (Chen, 2008). Rather than predict, explain or understand the findings of research, critical theorists seek social change (Chen, 2008).

In terms of the role of researchers, positivism regards that the role of people who are engaged in research is to study and verify external social phenomena. Interpretivism holds that the researcher should be a learner, whose task includes exploring the lifestyle and values of the research participant, and understanding the thinking of the participant. Critical theory holds that researchers should be

advocates of social change, and the real mission is to criticise society (Lewin, 1946). There are possible weaknesses in the adoption of any of these paradigms. Positivism introduces a position of scientism (an excessive belief in the power of scientific knowledge and techniques) and instrumental rationality into social science, and prefers measurements to be absolutely objective, experimental and logical. Interpretivism, on the other hand, assumes that people's behaviour has its internal and external relationships and people should be clear about their own motivation and the significance of their role. Their interpretations are important sources of insight into what is occurring. However, an excessive respect for the interpretation of the views of the research participants may lead to a relativism with a lack of reference points for measurement and judgement. Critical theory, based on the pursuit of an ideal situation, may not verify its own correctness (Chen, 2008).

Quantitative research is often based on the paradigm of positivism, while qualitative research tends to be based upon the paradigm of interpretivism, while action research generally belongs to the paradigm of critical theory (Chen,2008). Positivism and quantitative research, as well as interpretivism and qualitative research have the main purpose of seeking truth, and understanding what a phenomenon means. Critical theory and action research have the main purpose of seeking positive change or greater social justice, exploring and advancing what should be done to improve the situation (Chen, 2008).

This research is not based upon the critical theory paradigm. Although this research uses interview methodology to explore problems, the interviews are mostly concerned with trying to understand the views and situations of interviewees, rather than the purpose of seeking social change through discussion with interviewees. Positivism presupposed the existence of absolute reality. The focus of my research is not to find the objective reality but to explore the development of critical thinking among Chinese international students. For this reason, an interpretivist approach was the paradigm considered most applicable to constructing the understanding of critical thinking in the target population and securing data related to my four research questions through qualitative research methodology.

3.2 The use of the case study method of qualitative research in this research

3.2.1 Why qualitative research was chosen

Qualitative research is a holistic approach that involves discovery, a process of understanding society and people through complex, unique and detailed narratives in a natural situation (Creswell, 1994). Qualitative research describes phenomena in words instead of using numbers to measure them, and it seeks to interpret meaning from these non-numerical data and help understand social life through the study of targeted populations or places (Crossman, 2020).

In section 2.6 in chapter two, critique of critical thinking testing and measurement was discussed. The dynamics and diversity of thinking indicate that the test scores obtained from critical thinking tests can be only a theoretical score or an assumed value. It is questionable whether critical thinking can be reliably and validly tested by existing critical thinking testing tools. Moreover, these testing tools may only measure a very small part of a large number of critical thinking skills. If a student has the courage to ask questions, this does not mean they have the skill to ask questions critically. If a student considers opposing opinions in the process of constructing an argument, this does not mean that they are genuinely open-minded and have the ability to deal fairly with the opposing opinions. In the early stages of my research, the choice of research methods was carefully considered. Quantitative measurement tools are not able to explore the development of critical thinking and in-depth understanding of the research participants. One example of this is in answering the fourth interview question “Have you found the feedback helpful in guiding you to understand your ability to write critically and what you need to do to improve your critical thinking?”, Student Ju answered that feedback was only useful to a certain extent in the first and second rounds of interviews. However, the reasons for this answer given by Student Ju are different. “*I am influenced by my mother tongue thinking. I have some difficulties in understanding the tutors’ English thinking. I can only accept part of tutors’ views”* (Student Ju in the first round of interviews). “*Talking about feedback, the tutors only gave me the framework, without specific*

guidance. The tutors' feedback is not specific enough" (Student Ju in the second round of interviews). By using the qualitative research methods, different reasons can be discovered to explore this question more deeply.

3.2.2 The meaning of case study

Case study is one of five qualitative approaches (the others being narrative research, phenomenology, grounded theory, ethnography) to research inquiry (Creswell, 1994). Case study is a research strategy in social science (Yin, 2014). Merriam (2009) defines a case study as a complete research study on a particular person, a project, an institution or a social unit to make the researcher effectively understand how the subject operates or functions. Stake (1995) mentions that a case is a bounded system, which refers to a clearly defined object rather than to a certain process. For example, a teacher and a student can be a case; an innovation plan, and a school can also be a case, which has "a boundary and working parts" and is purposive (Stake, 1995, p.2). Yin (2014, p.16) states that "*A case study is an empirical inquiry that investigates a contemporary phenomenon (the 'case') in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident*". Researchers need to go into the field and use sufficient time to contact research participants. Researchers use 'thick description' of the case to make the readers fully understand the case (Stake, 2005).

The consensus reached by different definitions is that the case study method is a method of in-depth and specific research on a single research object (phenomenon). A case study is an empirical study, not a purely theoretical study. The significance of a case study is to answer the questions "why" and "how" (Yin, 1994., Stake, 2000), rather than answering the question "what it is". Specifically, case studies use individuals or groups of individuals as research objects, and they need to collect and sort out complete and objective information about all aspects, including historical background, survey results and interviews. Through case study, we can explore the characteristics of the research object, the formation and development of the research problems, and we may also promote the solution of research problems.

3.2.3 How to do case study

3.2.3.1 To identify research questions and select cases

Purposive sampling is useful for case study when a researcher wants to identify particular types of cases for in-depth investigation (Ishak & Bakar, 2014). When the research questions and purposes are clear, researchers define and select cases according to their own understanding and judgment, and then carry out research. Researchers select typical cases which can achieve the purpose of the study, and also consider whether the selected cases can provide a relatively convenient information source for their research (Ishak & Bakar, 2014). The selected cases should also have certain representation, so the research results can be convincing. A systematic and clear exposition of research questions has a great decisive impact on the selection of individual cases (Lu & Lin, 2007).

In addition, the following issues should be considered when defining and selecting a case: how a researcher win the trust of a case (individuals and social organisation) to enter a research site, what kind of role a researcher should play in the research process, what kind of ethical issues a researcher will encounter and how to deal with ethical issues.

3.2.3.2 To collect and analyse data in case study

In education research, data can be collected in the following steps: firstly, before researchers enter the research site to conduct case study, various data related to research issues should be collected, which mainly include existing literature on similar issues, various theoretical bases that may be involved, and the social background and environment of the case. This process can generally be obtained through literature research, and the information obtained can include various papers or research reports, and official documents. Whether the preparation is sufficient or not will have an impact on the development of case study and research results.

Secondly, researchers enter the research site for a comprehensive and in-depth investigation of the case. The work in this period mainly includes a

comprehensive and detailed observation of the case, an investigation of the surrounding environment of the case (such as school atmosphere, community environment and family background), interviews with research participants and individuals closely related to the case, and a request for information (personal works and teaching diaries) from the relevant individuals or organisations. At this stage, the researcher's observation, interview skills and interpersonal relationships are highly required, which are the key to obtaining comprehensive and authentic materials in the research, and also contribute to whether the materials are persuasive and authoritative.

Thirdly, researchers sort out and analyse the collected data. It should be pointed out that this step does not need to be carried out after the completion of the first two stages. In the actual process, it may be carried out at the same time as the previous steps which are the preparation before research and the process of data collection.

3.2.3.3 Advantages and limitations of case study

Case study is in-depth and comprehensive research. One purpose of case study is to investigate the specific research object deeply. Due to the small number of research objects, case study researchers can conduct in-depth, comprehensive and systematic analysis on the research objects. The data collected in case study is extensive and detailed. The data can include basic information of the case, various measurement results, observation and interview. Researchers use a variety of related research methods to obtain materials directly and indirectly, such as survey, interview and observation, in order to have a full understanding of the case.

Secondly, case study has situational authenticity. The activities of each case are carried out in the real living situation, which cannot be done in experimental research. The information obtained from the specific living environment can give people a sense of reality. Case study researchers can conduct continuous follow-up studies on research subjects. In order to understand the whole process of case development, researchers need to continuously observe various relevant situations and changes.

Thirdly, case study can be flexible. Because case study emphasises exploration rather than prediction, researchers can find and deal with problems in research. When conducting case studies, researchers do not need to make some assumptions in advance, which is different from a quantitative study. The research object of a case study is not acquired by random sampling, but is selected according to research purpose and interest.

Case study has some limitations. Firstly, case study can be considered to lack objectivity. This research method mainly depends on the interpretation and inference of data by researchers in the process of research implementation and results evaluation. With the influence of the researchers' own knowledge structure, ability and other factors, it may be difficult to ensure the objectivity of the research if there is an error in data processing and analysis. Secondly, the conclusions of case study may be difficult to generalise. Due to the small number and limited representativeness of case studies, it may be difficult to draw universal laws and conclusions from case studies. The research significance outside the place where the results are obtained is easily questioned by others, the possibility of promotion and application to a broader context may be limited. Thirdly, it may be difficult to maintain the confidentiality of the identity of the individuals or organizations under research when writing case study reports, which may lead to ethical problems.

3.2.4 The reasons for the choice of case study

Three reasons led me to choose case study as the research methodology. Firstly, case study tends to have long-term fieldwork and to lead the researcher to obtain first-hand information from actual places of work or other research sites. This method has no fixed pattern and grasps the progress of research according to the actual situation (Yin, 2014). In this research, from November 2016 to October 2017, I spent almost one year in the collection of data. The fieldwork in this article included interviews with participant students and their lecturers and collection and detailed study of students’ work samples.

Secondly, case study involves in-depth and detailed investigation. Using it can broaden observation perspectives and enrich research content (Hammersley &

Atkinson, 1995). Case study can make a unique contribution to explore hidden phenomena in education such as human emotions or the human environment which are difficult to define in quantitative research (Yu, 2010). So, a case study is a suitable method to monitor the complex subject area of the development of thinking, taking account of the situational influence of the specific context (the classroom or the campus), required in this research project.

Thirdly, the case study method emphasises exploration rather than prediction. My study is a cyclical process, which enables more flexible research. This is very different from quantitative research methodology. In quantitative research, the process of data collection is linear and the original research design is unchanged. The recursive and dynamic data collection process of case study can be used to describe a repeated event and adjust research design. If there is need, the process can be repeated to further improve the research questions and gain an overall explanation. Therefore, in the fieldwork, continuous interviews and conversations can be carried out between the researcher and the research participants. The results of this approach to research come from this process of interviews and conversations (Husen & Postlethwaite, 1985). Three rounds of interviews and continuous informal conversations were carried out in my research.

Case studies are characterized by providing explanatory insights into a few cases, revealing the richness and complexity of social phenomena, and promoting further comments and reflections. We can see the similarities and differences in the development of critical thinking in multiple cases (11 participant students in this study).

3.3 Interview method

Interview methodology is a basic research method to understand the psychology and behaviour of research participants through face-to face conversation between interviewer and interviewees, and also through the form and content of interviewees' language expression (Patton, 2002). Interviews are important way of collecting data in case study (Yin, 2014). It is a method to obtain data through the communication and interaction between interviewers and interviewees.

Through interviews, researchers can reach a deeper level of exchange of information. This data collection method is more direct and flexible than questionnaires (Lang & Heiss, 1991). The interview method can help researchers to understand research participants' thoughts and emotional reactions, and what happened in their lives, and the implied meaning behind their behaviours (Chen, 2000). Interviews provide a useful way to understand students' emotional experience and have flexibility in exploring participants' stories, and also provide an opportunity to distinguish the similarities and differences of emotional experience (Hargreaves, 2005).

Compared with other research methods, the interview method has the following three characteristics. The first of these characteristics is that the face-to-face interaction takes place between the interviewer and interviewee. Secondly, the interview process is the interview process is relatively flexible in making arrangements of time and location. Third is that it can allow the interviewer to use their creativity and respond to circumstances and ideas that arise in discussion. The interview is a survey method to obtain information through communication, which contributes to the understanding of the local social phenomena at that interview time and also of events which have taken place in the past. Use of the interview method can not only understand the interviewees' subjective motivation, feelings and values, but also receive answers to objective questions about the interviewees' various behaviours. An interview can obtain the information intended in the interview outline objectives, but also acquire some unexpected information beyond the scope of the outline objectives. The interview method requires investment in time and effort, material resources and financial resources, and therefore is more suitable for small-scale investigation rather than large-scale participant research (Chen, 2000).

The interview method has been widely used in sociology, education, psychology and other research fields. This method can be used to collect many kinds of data and is widely used in qualitative research (Chen, 2000). In this current research, semi-structured interview was the main method to gather data. I prepared interview questions in advance and asked my research participants to answer them. In the process of interviewing, the interviews were arranged according to

the most convenient time for interviewees, and interviewees were free to say what they wanted to say.

3.4 Recruitment of participant students with consideration of power distance

After I received the ethical approval from University of Leicester, I consulted my supervisor on how to recruit my research participants and she advised me to send emails to them. I issued invitation emails to invite Chinese international students at the beginning of the process but this proved unsuccessful and there was no reply from them.

One approach to recruitment would have been to ask MAIE course lecturers to request participation from students on the course. This approach was not taken, however, because of the concerns about the effect of power distance relationships between students and lecturers which would make it difficult for students to decline, and therefore would seem to conflict with ethical considerations. The use of the social media tool ‘Wechat’ for recruitment is discussed in section 3.4.2.

Chinese education is deeply influenced by Confucian thought and the imperial examination system. It pays great attention to the role of example in learning and has a social climate of respecting teachers, as well as having the cultural background of large power distances between teachers and students (Wang and Zhang, 2012). Whether these young Chinese international students have a high power distance value needs to be explored in this research. Chinese international students may have felt it difficult to refuse my invitation because I was introduced to them by their lecturers, hence associated with the perceived level of power exercised by lecturers. All the participants were anonymous and I guaranteed anonymity and confidentiality and the right to withdraw from the research at any time as an absolute minimum. All efforts are made to minimize the stress and psychological pressure the participants may have in the research.

3.4.1 Choice of research participants

Merriam (1988) states that qualitative research does not answer quantitative questions such as how much and how frequently. It solves qualitative problems such as what the event means and the relationship between events (Merriam, 1998). The selection of participants is based on whether we can get complete and accurate answers to the research questions. Stake (1995) states that samples should be chosen in order to make the most of what we can learn. According to our targets, we can choose the samples that can help us understand and reach conclusions. The time for field work is always limited. We need to choose the samples in order to facilitate the research if it is possible.

Purposeful sampling (Gall, Borg & Gall, 1996) is used in my research. In one master's degree course in one University in the UK, there were 13 Chinese international students. From them 11 students participated in all three rounds of interviews. Five lecturers who were teaching these students and have different cultural backgrounds were my participant lecturers.

There is no definite research literature or guidebook to explain how many samples are selected to be the most effective research samples in case study in qualitative research (Zhao, 2008). If there are too many samples, the quality of in-depth mining of all samples within a limited time may be difficult to acquire. If the sample size is too small, the research may result in biographical accounts of the limited number of people. There were three requirements in selecting student participants:

(1) Students have Chinese nationality and Chinese language as their mother tongue
(2) Students attend University One (University One is the anonymous name of one UK university)
(3) Students study master's degree and study the same course

The reason for choosing Chinese nationality is that this research only studies critical thinking of Chinese international students, not Chinese-British or other

identity students. This research also explores the relationship between English language ability and the development of critical thinking. So participants need to speak Chinese language as their first language. Participants study the same course in the same university, so research samples have consistency and this is suitable for comparative study.

Purposeful sampling (Gall, Borg & Gall, 1996) is also used to choose participant lecturers. The participants in the research are participants who can provide the maximum amount of information for the research questions (Stake, 2005). Five lecturers who taught the participant students were chosen to be participant lecturers. These lecturers showed interest in my research topic and were willing to be interviewed. They could provide sufficient information for my research questions and have experience in teaching Chinese international students. Also, the five lecturers have different cultural backgrounds, two lecturers have an Asian background and three lecturers have a British background.

In order to maintain anonymity, eleven participant students are referred as ‘Student Zhao’, ‘Student Li’, ‘Student Xue’, ‘Student Lu’, ‘Student Cao’, ‘Student San’, ‘Student Liu’, ‘Student Ju’, ‘Student Wu’, ‘Student Tu’ and ‘Student Wei’. Five participant lecturers are referred as ‘Lecturer Wendy’, ‘Lecturer Mark’, ‘Lecturer Helen’, ‘Lecturer Harry’ and ‘Lecturer Keith’. The basic details of participant students are as follows.

Name (pseudonym)	**Zhao**	**Li**	**Xue**	**Lu**	**Cao**	**San**	**Liu**	**Ju**	**Wu**	**Tu**	**Wei**
Gender	F	F	F	F	F	F	F	M	F	F	F
Age	24	24	22	25	24	25	24	25	23	23	24

Table 3.1 Participant students’ information

Table 3.1 shows that the age of the eleven participant students who have graduated from China’s undergraduate universities is between 22 and 25. Ten participants are females and only one student is male. This research does not explore the issue of gender among Chinese international students studying a master’s degree course and gender can be discussed in future research. The basic details of participant lecturers are as follows.

Name (pseudonym)	Wendy	Mark	Helen	Harry	Keith
Cultural background	Asian	British	British	British	Asian
Gender	F	M	F	M	M

Table 3.2 Participant lecturers' information

In table 3.2 I only know the background and gender of participant lecturers. Other information has no relationship with this research and was not explored.

3.4.2 The use of the social media 'Wechat' for recruitment of research participant students

The way for me to access the research participant students who are Chinese international students was through the Chinese social media Wechat. I failed in recruiting my research participants from sources such as emails. I issued invitation emails to invite Chinese international students at the beginning of the process of collecting data and there was no reply from them. Then I sent the invitation messages to these Chinese students again through Wechat and succeeded in gaining their agreement. This way to contact the participants shows the universality and broadness of using Wechat for Chinese international students in foreign countries.

The social media Wechat was developed by the company 'Tencent' in 2011 and it has the largest number of daily active users in China (Gan, 2017). WeChat is a smartphone-based communication app. It can send texts, videos, pictures, audio and other digital format information, which is another form of new media application from wired communication to mobile communication. WeChat is a piece of mobile communication software based around smart phones that can send voice messages, video, pictures and texts via the network, and support multi-group chats. WeChat is also a simple instant communication tool. WeChat is a piece of mobile software with communication, social and platform features. It has become an important mobile Internet portal. The main features offered by

Wechat include a communication function, social function and platform function. With the communication function, Wechat can send texts, pictures, voice and video information. It can also support real-time intercom, multi-group chat and video communication, which can improve communication efficiency and reduce communication costs. The social function of Wechat has friend circles, location-based service and mailboxes which can provide an informative social function (Wang, 2013).

Using social media Wechat in research recruitment is an area that researchers have rarely mentioned. There are discussions on the possibilities and value for Wechat in learning support and discussions on the potential applications in the field of education from the perspectives of Wechat platform characteristics and current situation of application (Wang, 2013). Some scholars have conducted research on Wechat application through teaching practice to prove its positive influence in education in China (Yu, 2013). The literature on supporting social media's effectiveness in recruiting research participants is growing. Kosinski (2016) described Facebook as a research tool to recruit participants. However, as of September 2015, around 3,000 websites were blocked by Chinese authorities in mainland China (Greatfire.org 2014) and some social media are blocked such as Facebook, Twitter and Instagram. Instead the social media Wechat has the largest number of daily active users in China and Chinese outside of China (Gan, 2017). Using Wechat in communication with Chinese people in and out of China can fill in a gap in the area of research recruitment.

3.5 Data collection

3.5.1 Semi-structured interviews

The interview process is the process of establishing a relationship between an interviewer and an interviewee (Rubin & Rubin, 1995). As a form of communication, the content and structure of interviews are often relatively unpredictable (Rubin & Rubin, 1995). In qualitative research, deep and rich understanding of the concept can be acquired through interviews (Kidd, 2004). In this research, semi-structured interview was the main method to gather data.

Semi-structured interviews were designed for both participant students and their lecturers.

Three rounds of interviews were carried out with students. I considered that students may have development in their courses, abilities and thinking in the journey of their master's degree courses.

The interview timings were as follows:

Interviews	Time
The first round of interviews with students	The first three months of their whole learning journey (from December 2016 to February 2017)
The second round of interviews with students	The middle month of their whole learning journey (March 2017)
Interviews with lecturers	The last stage of their lecturing time (from May 2017 to June 2017)
The third round of interviews with students	After the interviews with their lecturers and at the final stage of their whole learning journey (from August 2017 to September 2017)

Semi-structured interviews were based on the interview questions (see Appendix 6 interview questions for students and Appendix 7 interview questions for lecturers). However, the sequence of the interview questions could be changed and new questions could be put forward according to the response from the students and lecturers. The semi-structured interview can make the interviewee feel that their voice is heard and views are respected (Tutty, Rothery & Grinnell, 1996). I agreed the time and place with the participants in advance, and recorded the interviews after obtaining permission from the participant students and lecturers. The interview questions were designed to explore my four research questions and there were some differences between the questions to students and lecturers (see Appendix 6 and Appendix 7). In the interviews I

carried out with the participant students, I allowed them to choose whether to conduct the interview in English or Chinese. Students Lu, San and Liu said: “I can only express myself well and freely in Chinese”. Because I am a native speaker of Chinese, I can access these Chinese international students’ authentic opinions.

I chose to conduct interviews with students and also with five of their lecturers. One perspective is that I needed to explore with students to understand their learning experiences and their development in thinking. Another perspective is that through interviews with their lecturers I could better understand their views on how their students should demonstrate critical thinking and the lecturers could better understand the challenges the students were facing. Interviews with the participant lecturers could also help me to look at my research questions from different sides. Three rounds of interviews with students at their different learning stages and interviews with their lecturers was intended to result in a complete range of views on the subject of critical thinking and academic writing in this context.

3.5.2 Student work samples

I used Student work samples as data for analysis. These students submitted their written assignments and the marker gave them feedback which included how they demonstrate critical thinking skills in their writing. All master’s courses require students to demonstrate critical thinking in their written assessments. Therefore, they were given feedback on how they demonstrate critical thinking. I collected their marks and feedback, and interviewed students to record their responses to the feedback.

3.5.3 Ethics review and approval for this research

Ethics were considered for all aspects of this research. According to the BERA (British Educational Research Association) ethical guidelines and the University of Leicester ethical code of practice, an ethics case was made which documented the planned interviews of students and lecturers and the analysis of their academic writing and ethics approval was gained before the research

commenced. All efforts were made to minimize the stress and psychological pressure the participants had in the research. The position of the researcher was to be understanding and remain neutral. I addressed this by considering the power distance relationship between myself and the students, as a result I chose to recruit participant students by social media rather than being introduced by their lecturers.

As the research involves human participants, the internal protocols of the University of Leicester for the review and approval of research involving human participants were followed. Ethical approval was gained prior to the commencement of this research in accordance with the University of Leicester Research Ethics policy Code of Practice for Research Ethics Concerning Human Participants (Non-NHS).

The University of Leicester Research Code of Conduct guidelines were also followed to ensure the research was conducted to the standards expected by the University.

- To meet the commitments made in the Universities UK's Concordat to Support Research Integrity.
- To conduct the research guided by the values of honesty, rigour, transparency and open communication, care and respect, and academic freedom.

I had the role of Principal Investigator, Dr. Alison Taysum acted in the role of Supervisor of all activity carried out before commencement of the research, and throughout the conduct of the research. I consulted my Departmental Ethics Officer to ensure the research was reviewed by the appropriate Research Ethics Committee and all evidence of review and approval is held within the University online Ethics approval system.

Before Starting Research

Maxwell (1996) highlights the significance of a researcher's plan and how it can affect research participants. The way in which researchers communicate relevant information to their subjects may have a very important impact on the progress of research. Researchers should not only explain to research participants their personal background, research purpose and content and their expectations from the research participants, but also explain the principles of volunteerism and confidentiality to research participants (Chen, 2000).

I provided all required personal details and contact details for myself and my supervisor. I gave a commitment with evidence of how to ensure that all the participants were anonymous and they would be given a guaranteed anonymity.

Details were provided of the timing and location of the research, and who were intended to be the 'human participants' of the research and how they were to be identified, approached and recruited. Details were provided for how data security would be ensured by use of a password protected computer backed up in accordance with the Data Protection Acts 1998 and 2003. I ensured consent was gained in accordance with regulations.

During and after the research

All research was conducted as approved by the Ethics Committee. This covered areas of confidentiality, intellectual property and data security.

The research was disseminated in a manner that reports the research and findings accurately and without selection that could be misleading, and this was reviewed by my Supervisor and in the process of Examination of my thesis.

The research data are stored in a secure and accessible form and will be retained in compliance with the University Information Handling Policy.

3.6 Data analysis

Coding is a basic analytical technique when researchers conduct qualitative study (Charmaz, 2014). In this research, a different code is assigned to each

new idea that is identified. Coding can be based on natural paragraphs or sentences. There are often two main stages of coding in qualitative research. The initial coding associates the idea with a word, sentence or paragraph. Focused coding or selective coding involves selecting or focusing on the most important or frequent initial codes to categorize, integrate and organise data (Charmaz, 2014). The data analysis of my research is based on semi-structured interviews supplemented by students' work samples. The process of data collation and analysis is a process of repeated refinement and induction, which experiences the cycle of collection, analysis, reorganization and reanalysis (Glaser & Strauss, 1967). I read the original interview material repeatedly with an open attitude to the participant students' learning process then classified, applied layered codes and conducted analysis.

There were two stages in the analysis of this data. The first stage was recording, sorting and preliminary analysis of data. Each interview with participant students and lecturers was transcribed into a Microsoft word document and the student interviews were translated directly from Chinese into English. The second stage was coding and generic analysis. Two different ways were used to analyse data at this second stage – one for the student interviews and another for the lecturer interviews.

The total number of three rounds of interviews with eleven participant students was thirty-three, which was a big data resource. Microsoft Excel was used to iteratively code and analyse data in the interviews with participant students. Each of the codes generated were input into a spreadsheet along with the category into which they were grouped. A reference was placed beside each code to the place in the transcript where the idea represented by the code was identified. As the iterative process of assigning new codes was carried out features of Microsoft Excel allowed existing related codes to be identified and when a new code was required. Each interview from all the eleven participant students was recorded and transcribed into a table. The data from the table was analysed. Each identifiably distinct and relevant point made by a participant student was assigned a code, such as 'more than one perspective' or 'being logical'. Every time a participant made a new point, this new point was given a

code which was used for analysis.

There was one round of interviews with five participant lecturers and the total number of interviews was five. Distinct ideas were identified and direct quotations were used to present data from the interviews with lecturers.

3.7 The trustworthiness of this research

Qualitative researchers are concerned about the extent to which research findings or perspectives are consistent with reality, the extent to which they are applicable to similar situations outside of the research situation, the consistency of data interpretation, and the extent to which researchers' personal bias, motivation, interest or perspectives affect the discussion and analysis of data (Chen, 2001). Three rounds of interviews at different learning stages were carried out with participant students, and interviews with lecturers which gave the teachers' perspective were used in strategies to confirm the validity of the data.

If researchers and research participants are from the same cultural background, life habits and behaviour, the exchange of ideas and feelings between them can be easier than people from different cultural backgrounds (Li, 2004). It is important that research participants can accept the researcher, so the researcher can change themself from an outsider into an insider and is able to understand the situation of the local education context, which allows the researcher to consider education from the perspectives of the local cultural background and real life. I was a Chinese international student and I have been a lecturer for 12 years in one University in China who has a similar background to the research participants. The same background, language and experiences can allow me to be accepted by the research participants and have a close relationship with them. I also valued "the objectivity and legitimacy that outsider researchers brought to the data collection and analysis process" (Kebstetter, 2012. p.114). Researchers act as neutral and detached observers. I put great efforts to set aside my existing value judgments and to reduce the interference with the participant students in the study, and to treat all research findings fairly. I

tried to be aware of my personal constructs and tried to ensure that my research participants did not curb my open-mindedness in this research.

Chapter Four: Findings and Discussion from the first research question

Having discussed the literature relevant to my research, and presented the research design I used, and a profile of my research participants, I will now move to analyse and discuss the findings of this research. Four chapters will be used to analyse the four research questions. A further chapter (Chapter eight) will present categories of development among the participant students.

RQ1: *How is critical thinking described and understood by Chinese international students and their lecturers in the context of a UK HEI (Higher education institution) master's degree course?*

Critical thinking has been considered as an important target in education for many years (Facione, 1990., Moore and Parker, 2012). But for a long period, a clear concept of critical thinking has been elusive (Moore, 2013). Scholars have engaged in discussion and formed different theoretical models and used varied research methods on the concept of critical thinking. The first research question intends to add to previous studies on the definition and understanding of critical thinking from the perspectives of students and lecturers in the context of a UK Master's degree course.

4.1 Findings on the description of critical thinking from students

There were two main semi-structured interview questions with the participant students.
Interview question 1 (used in three rounds of interviews): *Can you describe what critical thinking is?*

The findings from the first round of student interviews were categorised as can be seen in figure 4.1：

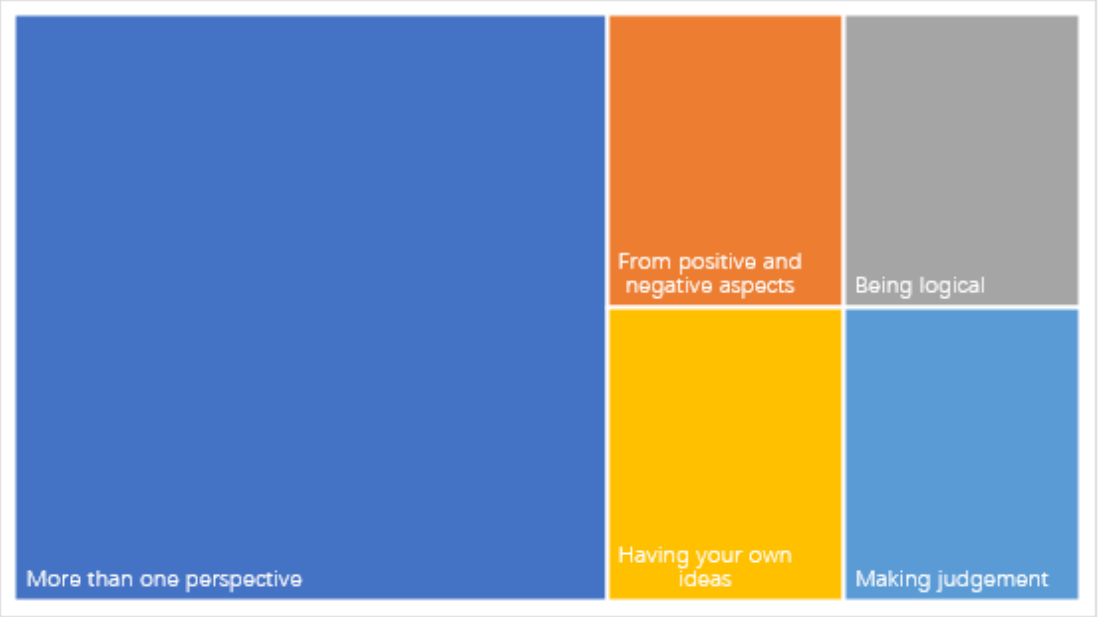


Figure 4.1—Coded categories of the definition of critical thinking in the first round of interviews with Chinese international students

Figure 4.1 shows that ideas describing the definition of critical thinking fell into five main categories: (1) Looking at things and views from more than one perspective. (2) Looking at things and views from positive and negative aspects. (3) Being logical. (4) Having your own ideas. (5) Making judgement. Most of the responses were in the category of 'Looking at things and views from more than one perspective'. This category is related with Socratic method which is a means to expose the contradictions of argument. We use Socratic method to find the definition of the concept by exposing opposing ideas as well as contradictions and conflicts in opinions. Student Li, Xue, Lu, Cao, San, Ju, Wu and Tu expressed their ideas in this category.

> Student Li: *We do not agree or disagree from one perspective. We need to think about one thing from the two perspectives of comparison and collaboration.*
>
> Student Xue: *One thing is not absolutely right or wrong, we need to think from two perspectives, which are positive and negative.*

Student Lu: *One thing is not absolutely right or wrong, we need to think from two perspectives.*

Student Cao: *We need to look at things from multi-angles and multi-perspectives. Critical thinking also means divergent thinking, which means positive, negative and multi-perspectives.*

Student San: *We need to think about things from good and bad perspectives.*

Student Ju: *One thing is not absolutely right or wrong. We need to look at the feasibility and disadvantages of one thing.*

Student Wu: *We need to look at one thing from good and bad perspectives. We cannot look at things from one perspective.*

Student Tu: *We need to look at things from two perspectives, which are good and bad perspectives.*

Student Li, Xue, Lu, San, Wu and Tu stated that they need to look at things from two perspectives at the beginning of their learning stage. Student Cao explained that critical thinking means looking at things from multi-perspectives. Student Ju mentioned the feasibility and disadvantages of things.

The category of 'Having your own ideas' is in the views of Student San and Liu.

Student San: *While we are reading references, we need to have our own ideas and do not follow other people's ideas.*

Student Liu: *Critical thinking in reading essays or in facing other people's ideas means having your own ideas.*

Student San and Liu both stated that critical thinking is important in reading and we need to have our own ideas. Critical thinking in reading literature is

demonstrated by students. Critical reading takes a critical view of the text and the author's position, processes new knowledge based on the individual's original knowledge system, and treats and solves problems with critical thinking. Independence, criticism and inclusion are the important characteristics of critical reading.

The findings from the second round of student interviews were categorised as can be seen in figure 4.2：

Figure 4.2—Coded categories of the definition of critical thinking in the second round of interviews with Chinese international students

Figure 4.2 shows that ideas describing the definition of critical thinking fell into eight main categories: (1) Looking at things and views from more than one perspective. (2) Making judgement. (3) Having your own ideas. (4) Looking at things and views from the perspectives of advantages and disadvantages. (5) Looking at things and views from positive and negative aspects. (6) Not following the authority. (7) Being objective to problems. (8) Reflective thinking. Most of the responses fell into the categories of ‘looking at things and views from more than one perspective’ and ‘making judgment’. The category ‘Looking at things and

views from more than one perspective' is in the words of Student Li, Xue, Cao, San, Ju and Tu.

> Student Li: *Look at things from two perspectives, which are positive and negative aspects, strengths and weaknesses.*
>
> Student Xue: *Think from multi perspectives and consider from the perspectives of advantages and disadvantages.*
>
> Student Cao: *It is a way of thinking. We need to look at problems from multi perspectives.*
>
> Student San: *Think about a problem from different perspectives.*
>
> Student Ju: *Think about problems in multiple ways, which can give new understanding on problems.*
>
> Student Tu: *Critical thinking is about looking at things in different ways and from different perspectives.*

Students who are in the first stage and the first round of interviews think that things are either right or wrong and there is no other alternative. Student Xue, Cao, San, Ju and Tu pointed out that looking at things from multi-perspectives in the middle of their learning stages. Student Li kept her opinion that looking at things from two perspectives.

The category of 'Making judgement' is in the words of Student Zhao, Lu, San, Liu and Wei, which are as follows:

> Student Zhao: *Critical thinking is about making comments on other people's opinions.*
>
> Student Lu: *Think critically. I feel that I should decide critically on ideas and opinions. I need to make my own judgment.*

Student San: *If you see content, you need to have your own judgment.*

Student Liu: *I will take a critical attitude to look at problems and make a judgment based on what I acquire.*

Student Wei: *Make judgments on the basis of cognition.*

Student Zhao declared that she needs to supply arguments to make judgment. Student Wei added that we need to make judgments on the basis of cognition.

‘Making judgment’ includes assessing claims and assessing arguments. The source reliability, relevance and credibility of an assertion or information can be evaluated. Students can check whether presupposition and premise are true, whether reasoning contains fallacies, and they can judge the strength of argument. This is related with Facione’s two dimensional definition of critical thinking skills (Facione, 1990). Making judgment is included in ‘Evaluation’ of the cognitive skills in the Delphi research project report (Facione, 1990). Siegel (1988) also states that the core of the definition of critical thinking is reasoning and the force of reasons to make judgment, assertion and actions. ‘The Book of Rites’ of Confucianism and Zhu xi of neo-Confucianism address the importance of ‘make judgment’. It says: “Unless we do not discern, we must not stop until we discern it completely”. "discerning clearly" bears the meaning of making reasonable judgment. Critical thinkers should have the ability to accurately analyse and evaluate external information.

In the second round of interviews, students had more variety in their understanding on the definition of critical thinking. Compared with the data from the first round of interviews, the categories of ‘Not following the authority’, ‘Being objective to problems’ and ‘Reflective thinking’ are the new categories generated from the second round of interviews.

Student Li explained her idea in the category of ‘Not following the authority’. She said: “*Look at things from two perspectives, which are positive and negative*

aspects, strengths and weaknesses. Don't follow the authority". Dewey states that a sceptical doubting attitude is the key to generate reflective thinking. Paul (1992) pointed out that critical thinking requires a critique of other people's views, opinions and assumptions. Student Li pointed out the idea of not blindly following the opinions from authority. However, different student showed different development traits. Student Tu said: *"If my tutor asked me to use some ideas, I will follow my tutor's ideas no matter whether I really believe it or not"*. This shows that this student is still under the influence of believing in authority and may emphasise too much on respecting teachers.

The findings from the third round of student interviews were categorised as can be seen in figure 4.3：

Figure 4.3—Coded categories of the definition of critical thinking in the third round of interviews with Chinese international students

Figure 4.3 shows that ideas describing the definition of critical thinking fell into eight main categories: (1) Looking at things and views from more than one perspective. (2) Having your own ideas. (3) Looking at things and views from the

perspectives of advantages and disadvantages. (4) Being logical. (5) Making judgement. (6) Asking questions. (7) Looking at questions dialectically. (8) Having sufficient evidence. Compared with the data from the first and second rounds of interviews, two new categories emerged in the third round. These two new categories are ‘Looking at questions dialectically’ and ‘Having sufficient evidence’.

Some new ideas were generated in the third round of interviews, Student Cao put forward the idea of creating new perspectives. She said: “*Critical thinking is to compare different ideas. Create new angles”.* She pointed out that there is relation between critical thinking and creation. Student Ju claimed that we cast aside traditional theory. He said: “*We need to rethink and define ideas and cast aside traditional theory”.* However, ‘having your own ideas’ does not mean excluding traditional theories. Student Xue compared critical thinking with the ancient Chinese philosophy behind Tai chi. She said: “*Critical thinking is like the ancient Chinese pattern in Tai chi. Critical thinking and Tai chi are interwoven but separated from each other*”. Student Xue supported the point that ancient Chinese thinking and critical thinking have similarities and differences.

The category of ‘Being logical’ appears in the first and third charts (Figure 4.1 and Figure 4.3), which show how student views on the definition of critical thinking evolved between the first round and the third round of interviews. Student San and Student Wei expressed this opinion in the first and third round of interviews.

> Student San: *Critical thinking is similar to thinking logically.*
>
> Student Wei: *Critical thinking means looking at questions logically. I must have my own thinking. I need to write in a logical way.*

Ancient Chinese thinker Zhuxi stressed the role of "discerning clearly" in learning. “discerning clearly” bears the meaning of logical analysis and reasoning. Ennis states that “critical thinking is reasonable, reflective thinking that is focused on deciding what to believe and do” (Ennis, 1985, 1987). This definition includes the

dimension of being logical. As Paul (2012) pointed out, there is logic in many disciplines. Every discipline has concepts, assumptions and theories. Every discipline involves making proposals, giving reasons and evidence, and avoiding contradictions and inconsistencies. Logic exists in every subject. Being logical is important in acquiring knowledge. However, critical thinking is not the same as being logical. Logical analysis of argument includes many core skills of critical thinking, but critical thinking skills go beyond logical analysis, including activities of evaluating evidence and searching for more information. In this respect, critical thinking is broader than logical analysis of argument. If a Euler diagram is used to express logical analysis and critical thinking, the two circles will overlap partially. Not all logical analysis of argument is critical thinking, not all critical thinking is logical analysis of argument.

Comparing the three rounds of interviews, students who are in the first stage and the first round of interviews think that things are either right or wrong and there is no other alternative. The characteristic of these students is asking what the correct answer is. Students of this stage think that teachers and authority know the right answers and their role is to teach them. Learning is taking notes, remembering facts and repeating these facts as needed. If students are asked to think independently or they are asked to provide their own ideas, they will be at a loss. They think that teachers and authority should be able to tell them the answers directly. “Knowledge and goodness are perceived as quantitative accretions of discrete rightness to be collected by hard work and obedience (Perry, 1970. p.9)”. In the first round of interviews, there are views from participant students which describe this stage of learning in their previous education in China.

> Student Li: *When I studied my bachelor’s degree in one university in China, teachers always gave me general conclusions.*
>
> Student Xue: *As a student, I copied other people’s ideas directly in China.*
>
> Student Cao: *Education in China is that students take what teachers teach them without doubt. There is restriction.*

> Student Liu: *University entrance examination is the most important part in Chinese education system. Students spend a lot of time in remembering facts.*

Student Li did not like the way that general conclusions were given by teachers. Plagiarism was defined by Student Xue as copying others' ideas directly. Student Cao and Liu pointed out the current problems in Chinese education.

After spending some time in the education system in the University in the UK, the category of responses 'looking at ideas and views from more than one perspective' shows that some students have made progress. Students believe that the world is complex and things are diverse, and there are many ways to solve a problem. In addition, there is a part of the world that people do not exactly understand and everyone has the right to express their opinions.

The main ideas expressed in the three rounds of interviews with participant students also show that Chinese international students can understand comparing the evidence they find and point out that they need to provide enough evidence to support their own ideas. Asking questions, then looking at things from more than one perspective and dialectically, and then they need to be logical and have enough evidence, finally they can make judgment and have their own ideas.

4.2 The interpretation of critical thinking of lecturers

From the literature review, it can be seen that the understanding of critical thinking can be complex. I interviewed eleven participant students and also five of their lecturers. This means that analysing the perspective of both students and lecturers in a specific context may contribute to the understanding of critical thinking in a UK HEI environment. One round of semi-structured interviews was used to interview five lecturers. The different participant lecturers had different opinions and emphasis on the interpretation of critical thinking, which are as follows:

Lecturer Wendy: *It is to think critically, to ask questions and self-reflection.*

Lecturer Helen: *It involves the ability to question, to question assumptions, to find these assumptions, to evaluate, to evaluate the worth of a piece of writing, to solve problems, to not thinking limited parameters and the ability to look through a range of different lenses as well.*

Lecturer Harry: *It involves a reflective approach to thinking about a problem in any particular context which might be personal or professional. The nature of the reflection involves some kind of healthy scepticism, a healthy and rational questioning of the problem itself. Critically engaging involves asking questions about evidence in support of a claim. It involves thinking clearly and critically about the internal coherence between ideas put forward.*

The ability to ask questions is highlighted by lecturer Wendy, Helen and Harry. The questioning method can be related with Socratic questioning method. Socrates often engaged in discussion with others. He started from their everyday concepts and then questioned their views. Question can also be related with ancient Chinese thinkers such as Mencius, Zhang Zai and Zi Xia and they all put forward the idea of “inquire minutely”. "Inquiring minutely" has the meaning of questioning. Asking questions can be used to explore complex concepts, acquire the truth of things, reveal hypotheses, analyse concepts and explore unknown knowledge. In teaching, asking questions can explore students’ thinking in depth, and can help students to distinguish what they know or understand from what they do not know or understand. Lecturers cultivate in students the ability to ask questions, which can help students to question others and themselves.

There is a need for a critical thinker to make judgment. Lecturer Helen pointed out the importance of evaluation. Lecturer Harry stated that critically engaging involves asking questions about evidence in support of a claim. Ennis states that “critical thinking is reasonable, reflective thinking that is focused on deciding what to believe and do” (Ennis, 1985, 1987). According to the definition from Ennis critical thinking can be summarized as a process consisting of three links:

(1) doubt/ questions, (2) pluralistic/ alternative opinions and (3) argument/ judgment. Critical thinking begins with doubting or asking questions, and is therefore opposed to superstition, blind obedience or arbitrariness. We should conceive answers or solutions whilst facing problems, which leads to the emergence of multiple opinions, because people have different perspectives, positions or references. There will be other alternative options or solutions besides their own opinions. Relativism (every opinion is reasonable and indistinguishable) often leads to self-denial. To make a judgment is to eliminate the less reasonable or effective opinions among the pluralistic opinions, and to choose the best answer or solution, or to integrate the various solutions to form a better one.

Lecturer Harry said*: "The nature of the reflection involves some kind of healthy scepticism, a healthy and rational questioning of the problem itself".* Confucius and Mencius advocated learning through the spirit of scepticism. Critical thinking starts from scepticism and advocates multiple perspectives and opinions. Scepticism is not enough to constitute critical thinking. Critical thinking needs healthy scepticism and rational judgment.

The demonstration of critical thinking by Lecturer Mark and Keith are as follows:

> Lecturer Mark: *Critical thinking is the analysis, the deconstruction, a synthetic approach and taking something to build up coherently.*
>
> Lecturer Keith: *In a learning context it may be to do with not really trusting what you read as completely true, but also thinking about the strength of evidence you have in order to make an assessment for yourself. Probably it is more to do with being independent, being an independent thinker who are able to come up with something new and innovate.*

One purpose of critical thinking is to be constructive. Making judgment is significant in critical thinking. One purpose of critical thinking is to find out the deficiencies in the thinking process of people themselves and others. Critical thinking has the meaning of suspicion, destruction and deconstruction. However, it does not mean deliberately and destructively slandering their own or other

people's ideas.

Lecturer Keith stated in the interview that an independent thinker is able to come up with something new and innovate in the interview. Student Cao in her third round of interviews also pointed out the importance of creation. She said: "*Critical thinking is to compare different ideas. Create new angles".* Critical thinking has relationship with innovation. This view can be related with McPeck's opinion. McPeck (1981) believed that critical thinking is related with innovation. He believed that the creation and production of knowledge and hypothesis are important parts of critical thinking (McPeck, 1981). He also stated that critical thinking contains creative elements and emphasized the creative and generative side of critical thinking.

4.3 Comparison and discussion on the definition of critical thinking

4.3.1 Critical thinking does not mean being negative, it involves reflective thinking and being constructive

From the interviews with students, students all point out in all three rounds of interviews that critical thinking means looking at questions and concepts from the perspectives of positive and negative, from advantages and disadvantages. Some students think that critical thinking involves the perspective of negative and we need to find the negative parts of things. Lecturer Wendy also mentioned that through their own learning experiences: *"When I approached critical thinking, in the early days, I thought it was just to critique, to attack, to provide negative evidence, to counteract what the literature says by providing examples from the different sides. Now I think my view of critical thinking changes to ask questions"*. Critical thinking is not about denigrating other people's statements. In a humanities culture being smart means being a critical truth debunker, and students may become too good at proving that other people's ideas are meaningless. This skill may eliminate their ability to seek or discover truth and being entirely negative is counterproductive (Roth, 2010). Lecturer Harry points out that critical thinking involves healthy scepticism, a healthy and rational questioning of the problem itself. Lecturer Mark states that critical thinking

means deconstructing something and using the deconstruction to build up something new. Lecturer Keith holds that a critical thinker can come up with something new and innovate. Roth (2010) also argues that in critical thinking students need to add value to whatever organizations in which they participate and not merely criticize values in it. By examining the previous critical thinking theories, one core purpose of critical thinking is to make a well-reasoned judgment. Critical thinking emphasizes that we should not blindly accept ideas and do not stick to stereotypes. One goal of critical thinking is to increase knowledge and value and make rational judgement. Lecturer Harry said, "*I am shaped by criticality because I simply will not accept things at face value"*. The attitude of questioning is the basis in critical thinking. Without having the attitude to ask questions, there will be no breakthrough. Lecturer Wendy: "*Critical thinking is to ask questions*". Critical thinking requires a questioning disposition. However, critical thinking does not require people to find negative parts and disadvantages. In the structure of reflective thinking, Dewey (1991) thinks that it includes two aspects. Firstly, The habit of reflective thinking. Secondly, Knowledge of logical reasoning. Lecturer Harry also says: "*The nature of the reflection involves some kind of healthy scepticism, a healthy and rational questioning of the problem itself"*. This healthy scepticism in critical thinking needs the spirit of questioning, but it does not mean that we need to find negation and disadvantages. Does critical thinking necessarily include negation? If a person agrees with the existing views after thinking and they do not overturn or breakthrough the previous view, does it mean that this does not involve critical thinking? Paul (1992) describes "Critical thinking is about your thinking while you're thinking in order to make your thinking better". Halpern (1998) states that critical thinking does not mean discovering mistakes. Discovering mistakes is used to describe a person to comment on things in a demeaning way or in a negative way. Critical thinking has broader implications. In Halpern's opinion, criticism refers to evaluation and judgment, which provides accurate feedback to improve the thinking process. Critical thinking involves a reflective approach to thinking about a problem (Lecturer Harry), rather than a specific conclusion. If we find that the existing view is reasonable after reflective thinking, the view should be affirmed. Otherwise it would be blind negation. The result of critical thinking may be agreement and acceptance of existing ideas. Negation does not

equate with critical thinking and critical thinking does not necessarily include the perspective of negative and disadvantages.

Critical thinking can be constructive. Take reading an academic paper as an example.

> *You are reading an academic paper, if you critically think about the academic paper, the critical thinking elements in it is understanding the various elements, break these elements down to ensure that you understand how these elements are put together. Then at some point you have to take all the analysis and then begin to build back together. Perhaps you need to say something new or something different* (Lecturer Mark).

Being a critical thinker involves being able to come up with something new, being able to innovate (Lecturer Keith). Student Cao in the third round of interviews which is also near the end of academic year expressed views about being constructive in critical thinking.

> Student Cao: *In my course, my manual has the assignment, when I do my working assignments, I need to have critical thinking. Compare different ideas. Create new angles.*

4.3.2 Critical thinking does not equate to logic, it is a cognitive act

> Lecturer Harry said: *"Critical thinking is a cognitive act. For example I am shaped by criticality because I simply will not accept things at face value. I will demand to see evidence in support of a claim. Or if someone is putting forward an argument I won't necessarily agree with the argument I won't necessarily agree with the ideas that make up the argument because I have a mindset shaped by this thing called criticality".*

Critical thinking theorists Glaser, Ennis and Siegel put the ability to think logically as a predominant factor in critical thinking. Critical thinking does not equate to logic. However, some students put it into the category of logic. There are

differences between logic and critical thinking. Critical thinking involves the element of innovation and critical thinking involves critical assessment of the evidence itself. Logical arguments may not be true. Some students mentioned the importance of looking at things dialectically. The work of judging the authenticity and quality of information is more and more important in current society.

Equating critical thinking as logic restricts the education and development of critical thinking. This would seem to correspond to the ideas that Paul (1982) states that a strong sense of critical thinking helps us to understand the restriction. If the idea of critical thinking is only used as a way to preserve one's own beliefs and opinions, it is what he terms a 'weak' sense of critical thinking. The reason why it is weak is that such use of critical thinking is not pursuing truth and virtue but to eliminate dissidents, which undermines the value of critical thinking in promoting humanitarian values, development and progress (Paul, 1982).

4.4 Emotions in critical thinking

4.4.1 Answers from students on intellect and emotions in critical thinking

The first research question used a second interview question with the participant students.

Interview question 2 (used in three rounds of interviews):

Do you think that critical thinking involves intellect more or emotions more? To what extent do you use both intellect and emotions to think critically?

The findings from the first round of students interviews were categorised as can be seen in the following figure 4.4：

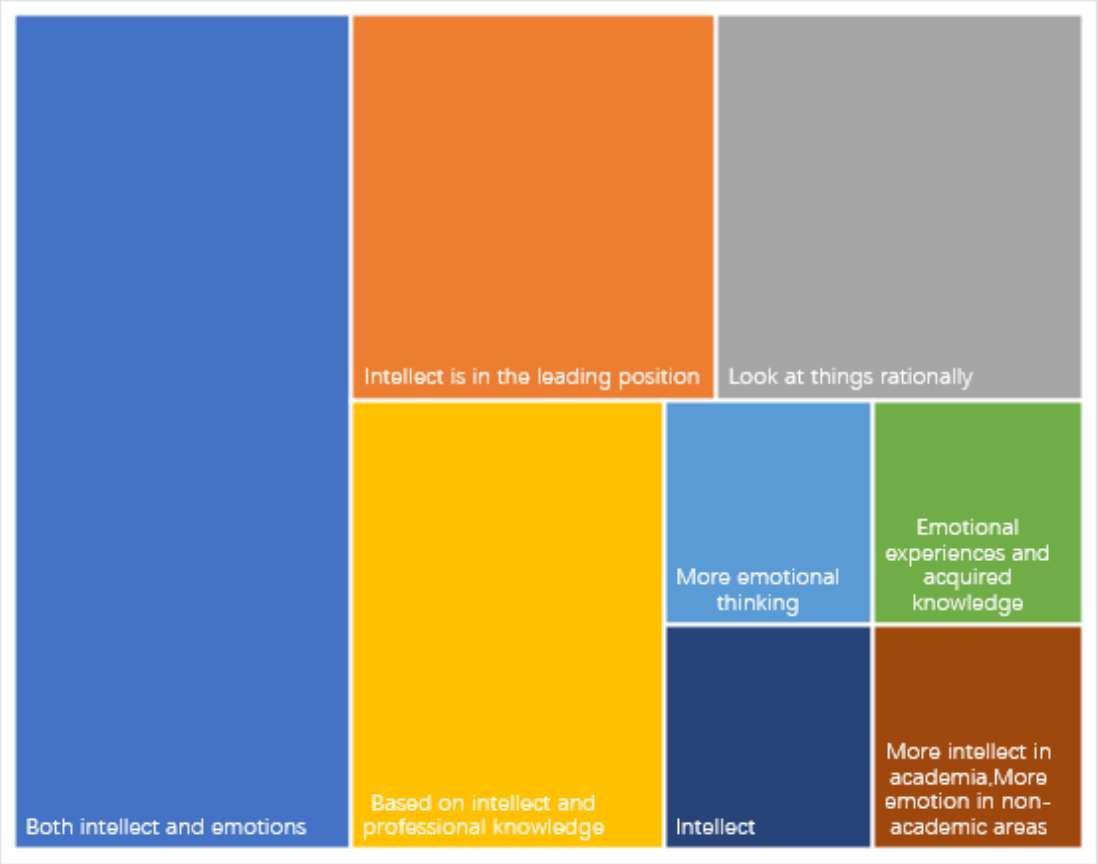


Figure 4.4—Coded categories of the relationship between intellect and emotions in critical thinking in the first round of interviews with Chinese international students.

Figure 4.4 shows that ideas describing the relationship between intellect and emotions fell into eight main categories: (1) Critical thinking involves both intellect and emotions. (2) Intellect is in the leading position. (3) Critical thinking involves looking at things rationally. (4) Critical thinking is based on intellect and professional knowledge. (5) Critical thinking involves more emotional thinking. (6) Critical thinking involves emotional experiences and acquired knowledge. (7) Critical thinking involves only intellect. (8) There is more intellect in academia and more emotion in non-academic areas. There are eight main categories and this figure shows that ‘critical thinking involves both intellect and emotions’, but ‘intellect is in the leading position’. ‘Looking at things rationally’ is also promoted by participant students.

The following chart is generated from the second round of interviews on this second interview question:

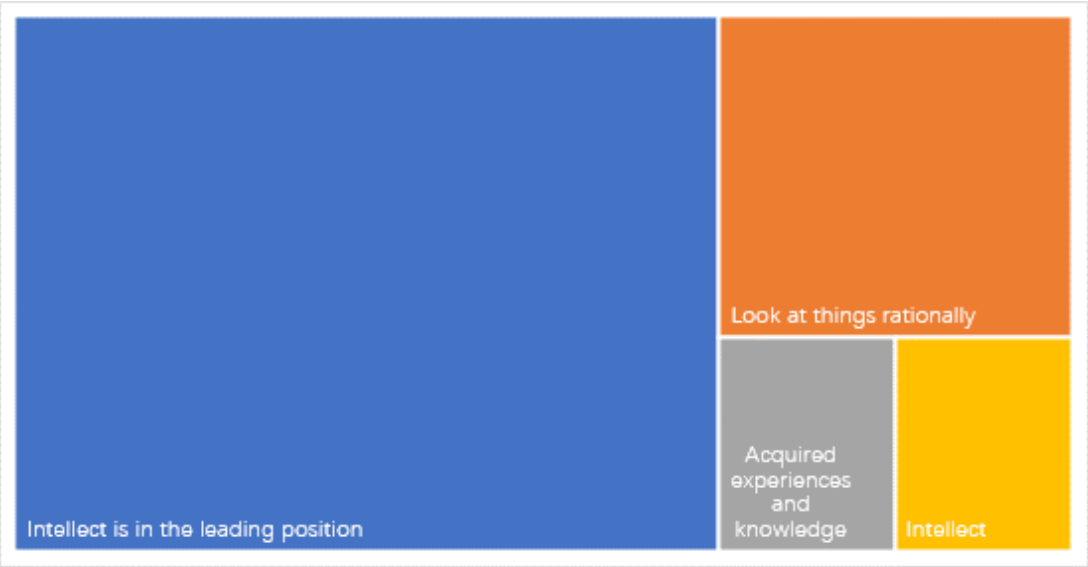


Figure 4.5—Coded categories of the relationship between intellect and emotions in critical thinking in the second round of interviews with Chinese international students

Figure 4.5 shows that ideas describing the relationship between intellect and emotions fell into four main categories: (1) Intellect is in the leading position. (2) Critical thinking involves looking at things rationally. (3) Critical thinking is based on acquired experiences and knowledge. (4) Critical thinking involves only intellect. There are four main categories and this table shows that 'critical thinking involves both intellect and emotions', but 'intellect is in the leading position'. In addition, in the second round interviews some students stated that critical thinking involves looking at things rationally and we cannot base our judgment upon emotional feelings, which are in the words of Student Xue, Lu, Liu and Tu.

> Student Xue: *Emotional elements can cause me to be too emotional. I feel that I need to see things rationally.*
>
> Student Lu: *Rational thinking is also based on intellect. There will be*

emotional factors, but not dominant.

Student Liu: *It is reasonable to look at things in a rational way. Everyone treats things differently. We need to make arguments to support our opinion.*

Student Tu: *There are more intellect elements. You may limit your thinking if you have too much emotion. Intellect can help you see things more rationally.*

The following chart is generated from the third round of interviews on this second interview question:

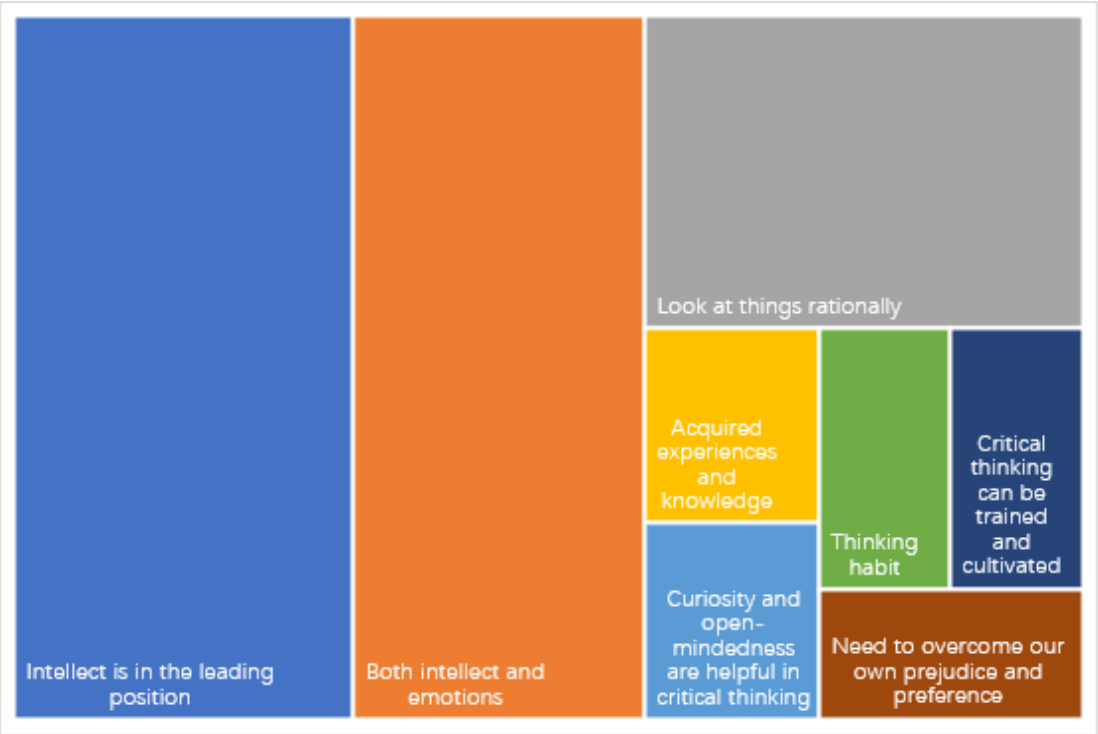


Figure 4.6—Coded categories of the relationship between intellect and emotions in critical thinking in the third round of interviews with Chinese international students

Figure 4.6 shows that ideas describing the relationship between intellect and emotions fell into eight main categories: (1) Intellect is in the leading position. (2) Critical thinking involves both intellect and emotions. (3) Critical thinking involves looking at question rationally. (4) Critical thinking is based on acquired

experiences and knowledge. (5) Curiosity and open-mindedness are helpful in critical thinking. (6) Critical thinking is a thinking habit. (7) Critical thinking can be trained and cultivated. (8) We need to overcome our own prejudice and preference in critical thinking. Data from the third round of interviews shows: Critical thinking involves both intellect and emotions, but intellect is in the leading position. Rationality is crucial in critical thinking.

From the three charts, participant students think that intellect is in the leading position in critical thinking, but critical thinking includes both intellect and emotions. This finding can be related with Paul's critical thinking theory. Paul (1993) emphasized the emotional factors of individuals, which are hobbies, thinking factors, thinking theories and emotions. He emphasized that using critical thinking is not only a skill, but also includes elements of attitudes, inclination and psychological characteristics.

Students put rationality in an important position in all the three rounds of interviews. This seems to reflect the critical thinking theories in literature review. Ennis defines critical thinking as reasonable, reflective thinking that is focused on deciding what to believe and do (Ennis, 1989). The word reasonable emphasizes the standard or dimension of critical thinking. Siegel (1988) emphasizes the link between critical thinking and rationality. Siegel states that critical thinking is driven by rationality and a critical thinker is moved by reasons. Paul and Elder (2006) stated that intellectual standards must be applied to elements of reasoning to develop intellectual traits. Students expressed that critical thinking includes both intellect and emotions and also includes rationality.

Ennis carried out a structural analysis on the definition of critical thinking, which resulted in a method for critical thinking skills to be taught and trained (Yildirim and Ozkahraman, 2011). Student San also expressed the idea that critical thinking can be trained and cultivated. She said:

> *Critical thinking can be trained and cultivated. Critical thinking is a long process influenced by environment and education. Critical thinking can also have a short-term training. The GRE test in America is good for developing students' critical thinking. After a period of intensive training of*

the GRE test, critical thinking can be developed.

Student Xue believed: "*Curiosity and open-mindedness are helpful for critical thinking. Curiosity can cause me to think*". Dewey (1910) also emphasizes the significance of curiosity in his reflective thinking. Curiosity transcends the level of organism and society. It can become an intellectual and rational activity (Dewey, 1910).

The categories of 'based on intellect and professional knowledge' and 'acquired experiences and knowledge' are shown in the above figures. This is related with the debate on transferability of critical thinking. Some scholars believe that critical thinking skills are discipline specific (McPeck, 1981,1990) and critical thinking skills are based upon expertise in specific subjects (McBurney, 2008). The category of 'Critical thinking is based on intellect and professional knowledge' is related with the above idea from McPeck and McBurney. Some scholars regard that critical thinking acquisition can take place independently and critical thinking skills are general skills which can be migrated between disciplines (Ennis,1989; Paul,1992; Siegel,1992). The category of 'Critical thinking is based on acquired experiences and knowledge' is related with the idea from Ennis, Paul and Siegel. From this finding, it shows that knowledge and ability cannot easily be migrated to another discipline, but each discipline involves critical thinking and critical thinking skills can be developed through professional learning and the training of thinking specific to the discipline.

4.4.2 Answers from lecturers on intellect and emotions in critical thinking

The interview question for lecturers is: Do you think that critical thinking involves intellect more or emotions more? The answers from the participant lecturers are as follows:

> Lecturer Wendy: *Critical thinking involves intellect more but unavoidably emotions. Being very emotional may not be respectful to contexts.*
>
> Lecturer Helen: *It got to include both. There is emotional disposition you need to adopt in order to think critically. It involves receiving feedback from*

a positive way.

Lecturer Harry: *I want to rationally appraise the argument, the theory, the claims and I am coloured by emotions. I emotionally engage in matters around research but I am not emotionally engaging at the point when I am using and applying critical thinking skills.*

Lecturer Keith: *It has an intellectual skill and emotional skill. You can have an affective disposition. It's the stance people take. I think it can have an emotional dimension as well.*

From the above lists of the answers from these lecturers, we can see that the common character is that critical thinking involves both intellect and emotions.

Critical thinkers should have certain affective dispositions and emotional qualities such as passion for exploring the unknown, vigilance of their own prejudices and biases, and an open attitude towards dispute. Lecturer Wendy and Mark also pointed out:

Lecturer Wendy: *We need to make neutral inference and try to avoid bias.*

Lecturer Mark: *Make sure that you avoid your biases. It is about looking at things in a fairly consistent way.*

4.4.3 Critical thinking not only includes skills but also includes morality and rationality

Lecturer Harry said: "*I want to rationally appraise the argument". Lecturer Wendy also claimed: "Critical thinking involves intellect more but unavoidably emotions. Being very emotional may not be respectful to contexts".* Lecturer Helen indicated that we need to think about the difference between right and wrong, the ethical issue. "*A sense of empathy is emotion, but it is also an intellectual concept that we need"* (Lecturer Helen).

Critical thinking requires morality. A person who is dominated by profits and reputation cannot be called a critical thinker who pursues the truth. Without the

foundation of morality, using critical thinking just as a skill cannot be real critical thinking. Paul's critical thinking has moral characteristics. The moral characteristic of critical thinking is that the purpose of critical thinking is not for the benefit of a particular number of people or individuals. The morality of critical thinking is mainly to guide the pursuit of truth as the ultimate goal of critical thinking, not to maintain their own beliefs or to resist different concepts. This corresponds to Paul's idea. Paul's definition of critical thinking is to moralize the function of critical thinking and to avoid that critical thinking becomes the tool of chicanery and sophistry (Paul and Elder, 2001).

Siegel (1988) advocates a concept of critical thinking from an epistemological perspective, which emphasizes rationality in critical thinking. One key ability of critical thinking is the ability to evaluate reasons (Siegel, 1988). Critical thinking starts from doubting and inspires from multiple perspectives, but more importantly, it concerns with making judgments from competing views and arguments according to reasonable standards, the dividing lines of which separates from scepticism and relativism. The nature of critical thinking and the most authoritative definitions of critical thinking all imply reasonable standards.

Several students expressed that we need to look at things rationally. Thinking itself can be subjective rather than objective, rational, reliable and clear. There are some unreasonable places under the cover of rationality. The human nature of selfishness has become an obstacle to critical thinking. People's existing knowledge may restrict their further understanding and practice of new knowledge. Lecturer Wendy and Mark stated that we need to make neutral inference and try to avoid bias. We should strive to improve our cognitive and practical abilities. We also need to constantly remind ourselves to overcome bias and personal interests. Lecturer Wendy stated that critical thinking contains self-reflection. We need to constantly reflect on ourselves and remind ourselves of our own limitations.

4.5 Critical thinking with Chinese international students

From the literature review, for Chinese international students who come to study in the UK, the question whether Chinese students are a special group which is

short of critical thinking needs to be discussed. The answers from the participant lecturers are as follows:

> Lecturer Wendy: *No. Developing critical thinking targets all students, all international students.*
>
> Lecturer Mark: *No. It is not for Chinese students who do not really have understanding of criticality. Maybe some of the British students can understand criticality.*
>
> Lecturer Helen: *I do not particularly separate Chinese students as a group. Maybe there is an overlap of cultural induction into British academia. That is for all oversea students and for British who come from non-academia background.*
>
> Lecturer Harry: *It is not only Chinese students but there are students from other regions of the world that don't have a mindset or a perspective shaped by criticality.*
>
> Lecturer Keith: *It is difficult to point that Chinese students are a special group.*

From the above lists of the answers from the five lecturers, we can see that Chinese international students are not a special group that needs to develop their critical thinking. In the literature review, Atkinson (1997) argues that critical thinking has cultural components and it is part of the western social practice. Critical thinking has no social place in the Asian culture (Atkinson, 1997). Davidson (1995) analyses the main cultural factors that hinder the development of critical thinking in the Japanese cultural background which are affected mostly by Chinese cultural traditions. From the interviews with the lecturers, the cultivation of critical thinking is the target for all students and Chinese international students are not separated as a special group.

Developing critical thinking is a lifelong process. Lecturer Wendy declared that

we wouldn't expect that Master's degree students can grasp in one year. Lecturer Wendy stated that: *"If you identify some problems in critical thinking in Chinese international students, this is not surprising because it is a long journey"*. Lecturer Harry added his view about the lifelong process of critical thinking:

> *I think critical thinking itself is a never ending process, it is not one of those skills that you learn, it's a lifelong process of becoming increasingly more critical, increasingly more appropriate, well balanced in the judgements you make – through applying the critical thinking mindset and skills* (Lecturer Harry).

4.6 Chapter summary

Various concepts and definitions of critical thinking are intertwined and intersecting and it is difficult to give the exact definition. All the concepts and definitions provide some insights of critical thinking, which have highlighted some important aspects and are suitable for a particular context. It is not surprising that critical thinking as a rich and vigorous concept has different definitions. However, researchers made the following consensus on the concept of critical thinking. Firstly, critical thinking theories identify critical thinking skills. Critical thinking skills include the skills to ask questions; the skills to understand, evaluate and argue; the skills to make reasonable judgments and the skills to solve problems. Secondly, critical thinking is closely related to rational and logical reasoning ability and may be equivalent to solving problems. Thirdly, critical thinkers should have certain affective dispositions and emotional qualities such as passion for exploring the unknown, vigilance of their own prejudices, and an open attitude towards dispute. Fourthly, critical thinking theory includes scepticism. Fifthly, the process of critical thinking includes metacognition and self-regulation, which means that thinkers need to use critical thinking to monitor, adjust and amend their own thinking in the process. Sixthly, there is a link between critical thinking and morality. Critical thinking requires a certain moral foundation.

The main ideas generated from three rounds of interviews with participant students are as follows: Critical thinking means looking at things from more than

one perspective. Students stated that the importance of having their own ideas and making judgment. Being logical, not following the authority and being objective to problems are related to critical thinking. Critical thinking includes reflective thinking. Chinese international students are aware of the importance of asking questions, looking at things dialectically. Critical thinking involves both intellect and emotions, but intellect is in the leading position. Rationality is crucial in critical thinking. Critical thinkers should have certain affective dispositions and emotional qualities such as curiosity and open-mindedness.

My research results from the semi-structured interviews with students and their lecturers have added points in the following categories. (1) Critical thinking does not mean being negative, it involves reflective thinking and being constructive. (2) Critical thinking does not equate to logic, it is a cognitive act. (3) Critical thinking not only includes skills but also includes morality and rationality.

Although Chinese students are from a background which has not promoted critical thinking for a long time, I also want to claim that they are not a special group which needs to be specialized in critical thinking. Critical thinking is necessary for all university students. Critical thinking itself is a never-ending process, it is not one of those skills that we learn, it is a lifelong process of becoming increasingly more critical.

Chapter Five: Findings and discussion from the second research question

RQ2: *How do Chinese international students demonstrate critical thinking skills in their academic writing on this UK HEI master's degree course?*

Writing is one of the most effective means to train the critical thinking ability of students (Tsui, 1999). In Higher Education in the UK critical thinking is highly valued and students are expected to demonstrate it in their academic writing (Tian, 2008). Tian and Low (2012) pointed out that: "the training that Chinese students received in China may not have prepared them well for academic writing at an advanced level in the UK" (Tian and Low, 2012, p.299). This section explores how Chinese international students demonstrate their critical thinking in academic writing after they commence their course of Master's study in the UK.

5.1 How Chinese international students demonstrate critical thinking skills in their academic writing

The first interview question related with the second research question with the participant students is:

How do you demonstrate critical thinking skills in your work samples? How do you write, or construct a paragraph to demonstrate your critical thinking?

The findings from the first round of students' interviews were categorised as can be seen in the following figure 5.1：

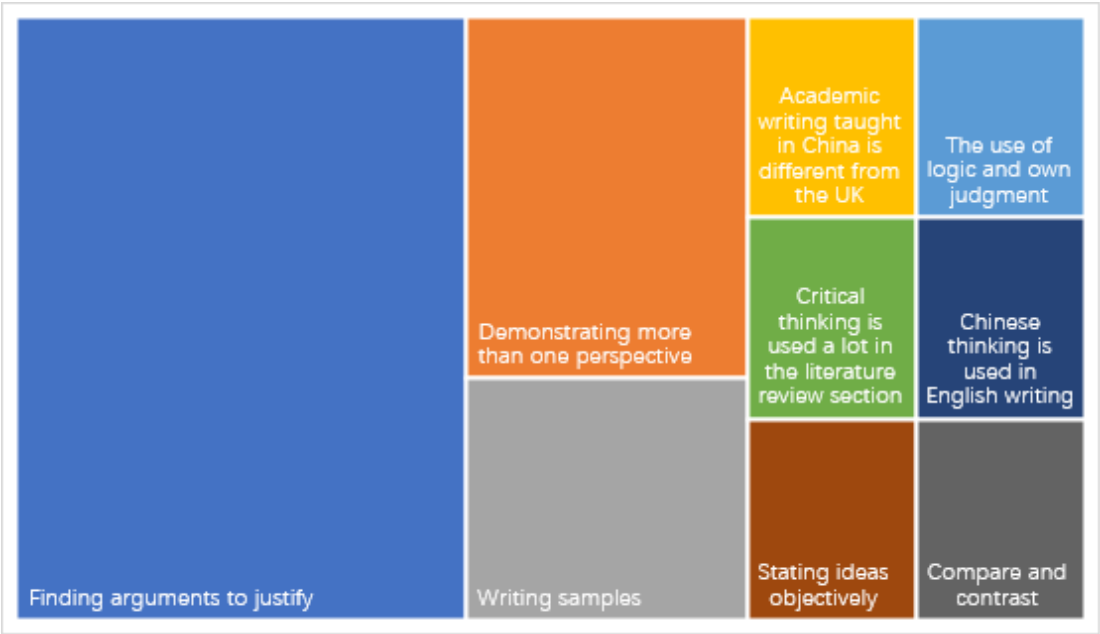


Figure 5.1—Coded categories of the responses of students in the first round of interviews to how critical thinking skills should be demonstrated in their work samples.

There are nine main categories. Most of the responses were in the categories: ‘Finding arguments to justify’ and ‘Demonstrating more than one perspective’.

The chart below shows the responses of students in the second round of interviews to how critical thinking skills should be demonstrated in their work sample.

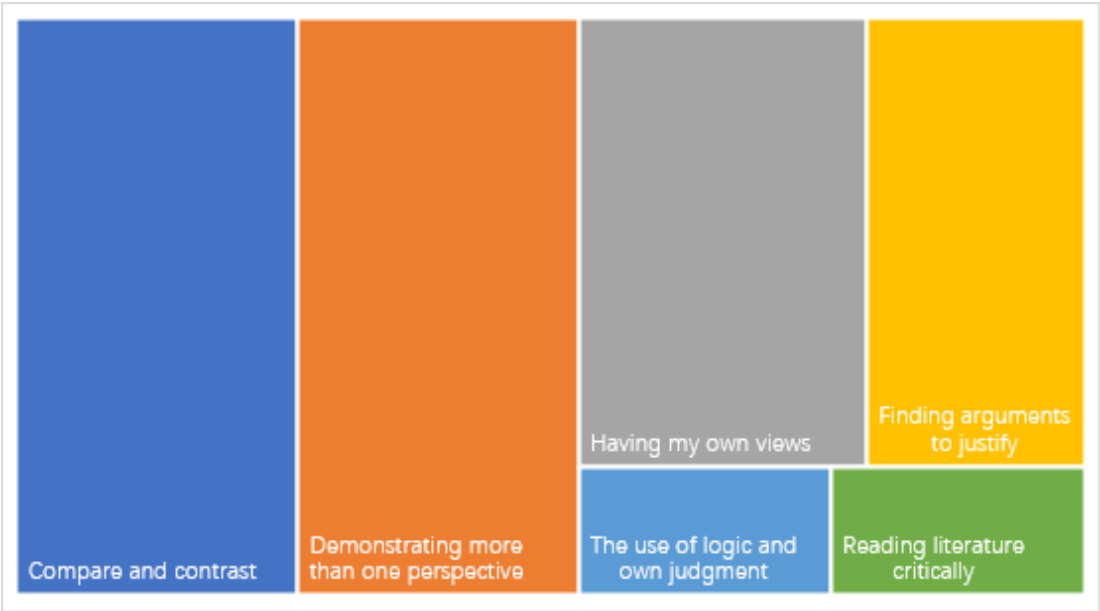


Figure 5.2—Coded categories of the responses of students in the second round of interviews to how critical thinking skills should be demonstrated in their work samples.

There are six main categories. Most of the responses were in the categories which are ‘Compare and contrast’ and ‘Demonstrating more than one perspective’.

The chart below shows the responses of students in the third round of interviews to how critical thinking skills should be demonstrated in their work samples.

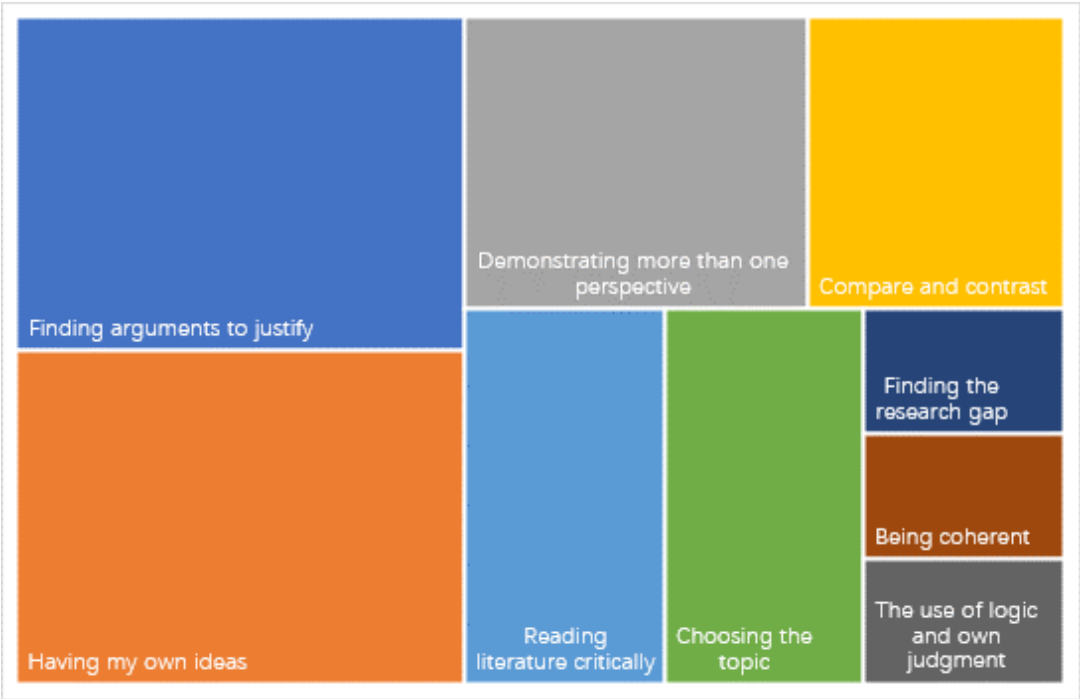


Figure 5.3—Coded categories of the responses of students in the third round of interviews to how critical thinking skills should be demonstrated in their work samples.

There are nine main categories. Most of the responses fell into the categories which are 'Finding arguments to justify', 'Having my own ideas' and 'Demonstrating more than one perspective'.

Comparing the three charts, the category of 'Finding arguments to justify' has been mentioned three times and a high proportion of students presented this view. The views of participant students about the category of 'Finding arguments to justify' are as follows:

> Student Zhao: *In academic writing, if I refer to other people's opinions, I need to think about whether I support or oppose their opinions.*
>
> Student Li: *In academic writing I wrote a topic sentence, then I gave reasons, analyse and construct a paragraph.*
>
> Student Xue: *In writing, I stated my opinion and gave proof to testify it.*

Student Cao: *In different arguments, I will point out my argument first. I will give evidence. For summary, I will also give the argument about the whole paragraph.*

Student San: *Now I think about how to find arguments to support my ideas, which also include good and bad aspects.*

Student Ju: *I firstly state my opinion, then find supporting data.*

Student Tu: *In my writing, there is a topic sentence, the next part is to analyse other people's opinions.*

The category of 'Finding arguments to justify' involves the process of forming judgment and collecting data in academic writing. One aspect of reflective thinking by Dewey is the knowledge of logical reasoning. Logical reasoning is one skill and one logic method to deal with problems. The writer makes judgments about the authenticity of collected information and the relevance of the collected information towards the research. Critically evaluating an information source is interlaced with critical thinking, such as determining the depth and breadth of information sources, selecting the information and editing it.

Comparing the three charts, the category of 'Demonstrating more than one perspective in academic writing' is shown in all three charts. This category is in the second position in the first and second rounds of interviews. It is also in the third position in the third round of interviews. These are the ideas students explained about 'Demonstrating more than one perspective'.

Student Zhao: *I will demonstrate from the two perspectives, which are positive and negative.*

Student Li: *The whole process of writing requires critical thinking. We need to mention both good and bad aspects.*

Student Xue: *In the writings for IELTS, I needed to analyse data from two perspectives. If there are three paragraphs in one essay and the results are more positive, two paragraphs are positive.*

Student Cao: *Every paragraph has argument. Look at problems from different angles. Critical thinking not only includes advantages and disadvantages, maybe just various opinions, gather them into my assignment.*

Student San: *We need to express my ideas reasonably, tell advantages and disadvantages, and think about opinions from all aspects.*

Student Wu: *Look at the two aspects of things. Use evaluations in writing. We need to write both advantages and disadvantages.*

Student Tu: *In pre-sessionals, teachers taught me how to write. Demonstrate one essay from different angles and opinions.*

Student Zhao, Li, Xue, Wu pointed out that they need to explain things or analyse data from two perspectives. Student Tu said that she learnt academic writing in her pre-sessional English course. Student Cao, San and Tu articulated that critical thinking involves various opinions and thinking about things from different perspectives.

The category of ‘Demonstrating more than one perspective in academic writing’ can be interpreted that it is not enough to just evaluate single argumentation or reasoning. Other factors that are not included in the original texts or not clearly included in data collection and evaluation also need to be considered. In the research process, these factors include critical reading of peer criticism. Whilst evaluating the deduction of the existing argument, these factors include the concern about the situation that may lead to refutation. These factors also include consideration of doubts that may arise from the conclusion, such as other interpretations of the collected data, opposition or criticism to the premise or deduction. In addition, the meaning of the conclusion needs to be taken into

consideration. Dewey (1910) pointed out this point in the description of reflective thinking. It is necessary to consider whether the conclusion can stand up to other confirmed information (knowledge) and whether the conclusion has confirmed or promoted the existing understanding of research problem. It is also necessary to ask ourselves whether the conclusion has brought new inspiration to research.

Comparing the three charts, the category of 'Compare and contrast' is shown in the second and third charts. This category is not shown in the first chart. These are participant students' views about the category of 'compare and contrast' in the second and third rounds of interviews.

> Student Zhao: *In working sample, firstly we must clearly point out whether we agree or deny the views of others.*
>
> Student Xue: *In writing we need to list the parts that we agree and the parts that we disagree. I showed my critical thinking in comparing different literature.*
>
> Student Lu: *I need to compare the advantages and disadvantages. We need to compare and contrast in writing.*
>
> Student Ju: *Do some comparison. In the process of compare and contrast, I will compare two different opinions and observe which part has more advantage.*
>
> Student Wei: *Compare and contrast is useful in academic writing.*

Student Zhao expressed her opinion about agreeing or denying different views and Student Xue showed the comparison of different literature. These two students' opinions can be generalised into the category 'Compare and contrast". This category 'Compare and contrast' is related to the clarification and evaluation of evidence in academic writing. This category can be linked to Dewey's reflective thinking. Dewey considers this process of reflective thinking as the solving of a problem, which is to doubt, form questions, develop

alternative solutions, use reasoning, implement the solution and evaluate the outcome. Developing alterative solutions requires comparing and contrasting. Clarification is not only clarifying the problem and inferring the appropriate research methods, but also clarifying the key words and concepts used in every part of the problem, as well as in every part of evidence, reasoning and argumentation. The quality of evidence also needs to be evaluated after confirmation or collection of evidence.

Comparing the three charts, the category of 'Having my own views' is shown in the second and third charts. This category is not shown in the first chart. In the second and third round interviews with participant students, this category of 'Having my own views' has a big proportion in all of the ideas.

> Student Xue: *In writing we need to list the parts that we agree and the parts that we disagree, then we need to express our own opinions.*
>
> Student Cao: *Critical thinking not only includes advantages and disadvantages, maybe just various opinions, gather them into my assignment. I will make my argument from their opinions.*
>
> Student Liu: *I need to use critical thinking in the data analysis because we can't just borrow ideas from other people's research. I have to have my own opinions.*
>
> Student Ju: *Put out the things that have happened, set forth the views and put forward my own views. I do not limit myself to existing conclusions and will explore new idea.*
>
> Student Wu: *I don't just list ideas. I give my own opinions.*
>
> Student Tu: *In writing, I usually collect more information, analyse different views and express my own views.*
>
> Student Wei: *In design I let my every step be coherent and will have my*

own idea at each point.

Students pointed out the category of 'Compare and contrast', then they added that they also need to have their own views. The category of 'Having my own views' can be demonstrated in that critical thinkers should have a position or views on the main questions or topics. If this is a question about what to believe, then a (possibly reasonable) judgment should be made after the completion of the whole critical thinking process. If this is a question about what to do, thinkers or writers need to decide which one is the best after considering all the possible options. This is also related with one stage of Dewey's reflective thinking, which is further observation and experiment leading to its acceptance or rejection of what to believe, the conclusion of belief or disbelief. We need to evaluate the ideas and have our own views.

The category of 'writing samples' means that writing samples are helpful in academic writing. This category is shown in the first chart, which is not shown in the second and third charts. Student Zhao and Wei expressed this idea in the first round of interviews.

> Student Zhao: *There are writing samples given by lecturers in in-sessional courses. Critical writing means that stating the topic sentences, then I prove and analyse them.*
>
> Student Wei: *My writing sample is the structure of introduction, elucidation and conclusion. I will write introduction at the beginning. There are details in the middle and conclusion at the end.*

Student Zhao and Wei in the first round of interviews applauded that writing samples can help them in their writing. High school students and teachers treat Gaokao (the National college entrance examination) as their only learning target. Different kinds of writing samples are designed. Students can increase their chances of getting high scores by applying a certain writing sample, or at least pass the exams (Wen & Zhou, 2006). It is common for tutors to ask students to use writing samples for IELTS (International English Language Testing System)

test to try to get high score for Chinese international students to study abroad (Wen & Zhou, 2006). Chinese students expect to have writing samples at the beginning of their Master's course in the UK. However, students showed that they understand the meaning of critical writing more deeply in the second and third round of interviews. Participant students did not show interest in writing according to samples.

The category of 'academic writing taught in China is different from the UK' is shown in the first chart. Several students realized the difference in the first round of interviews, which is at the beginning of their writing journey.

> Student Li: T*he knowledge of the academic writing and writing for IELTS taught in China is difficult to be used in the assignments in the UK.*
>
> Student Xue: *Before IELTS writing, there is no training to write critically.*
>
> Student Ju: *I don't have a lot of experiences in English writing.*

Academic writing taught in China is different from academic writing in the UK. Grabe & Kaplan (1996) pointed out that writing ability is not a natural acquisition ability, but a capability that learners need to acquire through certain education in schools or other learning institutions. If learners want to improve their writing ability, they need to receive effective writing guidance. Writing does not mean simply translating ideas into words, but rather a complex cognitive process (Hyland, 2019). Writing may be a process of exploration and creation. English teachers in Chinese schools give students writing training, such as IELTS or other examinations of English writing for university entrance. Students learn to recite composition samples and may achieve satisfactory scores in various examinations, but they do not really acquire English academic writing ability. This finding can be related with the opinion of Tian and Low. They pointed out that the training that Chinese students received in China may not have prepared them well for academic writing at an advanced level in the UK.

Chinese international students have made some progress in their academic

writing. In the final round of interviews, students pointed out the importance of reading literature review critically and finding the research gap. They need to collect data related to topics from multiple perspectives and justify the arguments on the basis of assessing the reliability and relevance. Students also expressed that organizing paragraphs logically and presenting reasoning process clearly.

5.2 Answers from lecturers on how Chinese international students develop critical thinking in their working samples

Lecturers were interviewed: How do Chinese international students develop their critical writing skills to meet the intended learning outcomes in the programme specification and module specifications for developing critical thinking skills? The following is the feedback from participant lecturers Wendy and Helen.

> Lecturer Wendy: *I ask students to go through the literature review section of high quality journal articles and ask them to identify. I ask students what their identification of synthesis, analysis and criticality is. I ask them to critique theoretical components and methodological angles as well.*
>
> Lecturer Helen: *My impression is that when students read and engage with new ideas and are willing to try out ideas, they made solid progress.*

From the above feedback we can see that critical reading is promoted heavily by participant lecturers. Critical reading is an important way to cultivate critical thinking. Critical reading enables readers to distinguish between important and unimportant information, to separate facts from points of view, and to determine the purpose of the author. Readers need to derive implication through reasoning and fill the gaps in information on logical conclusion (Pirozzi, 2003). Fahim, Barjesteh & Vaseghi (2012) launched an experiment on whether critical thinking strategy can promote reading ability. The results show that critical thinking is highly correlated with reading comprehension ability. Critical thinking is the important condition and promotive factor of critical reading. Ko (2013) originally thought that critical reading in Asia in not easy to be implemented because Asian people are taught to respect the authority. The results carried out in one Taiwan

university show that critical reading can be put into effect. The interviews with participant lecturers also show that critical reading can be taught to Chinese international students and help to develop their critical thinking ability in writing.

Lecturer Keith and Mark presented their answers to this interview question.

> Lecturer Keith: *When we create our assignment topics for them to do, we need to create them in such a way that students can develop their critical thinking skills and independent learning skills and demonstrate those as well and students will have 2 or 3 hours of tutorial time.*
>
> Lecturer Mark: *Being able to take a subject very interesting and being able to engage with literature pulling out is the main thing. Then discuss, explain, evaluate those things and synthesis these things together into an overall discussion.*

From the above feedback we can also see that lecturers pay attention to the topics in students' assignments and new ideas generated from students' writing. A good topic is the starting point of critical thinking. Barron (2002) stressed that the most suitable topic should be the real interest of students, not a specific topic assigned by lecturers and teachers. Gaskaree, Mashhady & Dousti (2010) stated that students use clarification, confirmation, verification, understanding, questioning, supplement and feedback in the process of determining the topic, which involves critical thinking. Participant students are given assignments which are not specific topics and can develop their critical thinking skills and independent learning skills.

Lecturer Harry added his opinion on using written examples to guide students in the development of critical thinking.

> Lecturer Harry: *Let us have some written examples of these and ask students what aspects of this writing reflect critical thinking, then ask them what aspects of critical thinking are reflected and then provide them with short micro tasks.*

Chinese international students sometimes are not open-minded towards dispute and they do not like having discussions with their lecturers. Lecturer Keith expressed this in his interview.

> *Students will have 2 or 3 hours of tutorial time, and one of the things with these students is that not many of them take this opportunity for individual tutorials so these are the kind of things where students can have help with their own thinking and negotiate with the tutor, challenge the tutor, the tutor will challenge students, and so on. There are some students who do that very well, but the majority unfortunately* (Lecturer Keith).

Lecturers may need to help students break the consciousness of self-protection and let them to be open-minded. Critical thinkers should have certain affective dispositions and emotional qualities such as passion for exploring the unknown, vigilance of their own prejudices, and an open attitude towards dispute.

Chinese students are in a position that they do not want to show their lecturers their writing if they are not ready. Lecturer Mark said:

> *Chinese students do not want to show you something if they do not think that they are ready. If they need to write 300 words, they are in a position that these 300 words have to be right. These students do not think that academic writing in a process, it is something you do at the end. They see writing as a finishing product rather than a tool to help them to develop their thinking* (Lecturer Mark).

Chinese students put emphasis on “Face” and are afraid to lose face in front of lecturers. “Face is the respectability and/or deference which a person can claim for himself or herself from others, by virtue of the relative position he or she occupies in his or her social network and the degree to which he or she is judged to have functioned adequately in that position as well as acceptably in his or her general conduct” (Ho, 1976. p.883).

5.3 Findings from the relationship between language and critical thinking

Dewey (1920) proposed that language and thinking are closely related to each other. The findings of Floyd (2011) indicated that language ability is one factor affecting critical thinking skills. This raises a question of whether language ability is one affecting factor for Chinese international students who are studying for a Master's course and have already achieved a high IELTS language test result.

The interview question with participant students is:
Do you think critically in Chinese and then translate into English or do you think critically in English?
The chart below shows the student responses in the first round of interviews.

Figure 5.4—Coded categories of the responses to whether Chinese international students think critically in Chinese and then translate into English or they think critically in English in the first round of interviews.

Figure 5.4 shows that Chinese international students mainly think in Chinese and then translate it into English.

The chart below shows the student responses in the second round of interviews grouped into their assigned categories.

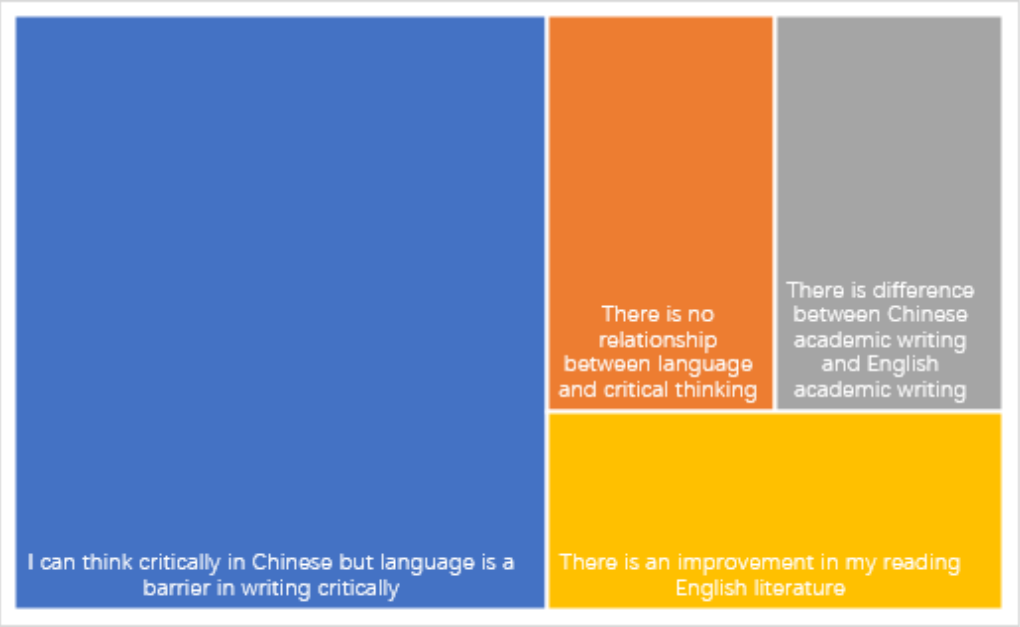


Figure 5.5—Coded categories of the responses to whether Chinese international students think critically in Chinese and then translate into English or they think critically in English in the second round of interviews.

There are four main categories. Most of the responses were in the category that 'I can think critically in Chinese, but language is a barrier in writing critically'. From the second round of interviews with participant students, some students have made progress in reading English literature. Some students pointed out that there is no relationship between language and critical thinking. Some students stated that there is difference between Chinese academic writing and English academic writing. Through the data from the second round of interviews, two new interview questions which are about the relationship between language and critical thinking and the difference between English academic writing and Chinese academic writing were generated and interviewed in the third round of interviews with participant students.

From the responses in the third round of interviews to whether students mainly think in Chinese or English in their writing process, a large proportion of students still think in Chinese. An example linked to this point is that Student Tu stated that "*Because I have stayed in Chinese environment for more than 20 years. I*

have been in the UK for only one year and it is very difficult to think in English". The above chart shows that a small number of Chinese students can partly think in English and bilingual thinking can be one characteristic in second language writing.

In the responses to the question of the relationship between language ability and critical thinking, all the participant students argued that language ability is not directly related to critical thinking. Floyd (2011) stated that critical thinking is more difficult in a second language and she arrived at this view following the research through a small scale experimental approach. I argue that the findings from the interviews with Chinese international students indicate that language ability is not directly related with critical thinking. However, language can be a barrier in writing critically for Chinese international students. To think critically does not mean a student has the skill to write critically in a second language. Students realised that there are differences between Chinese academic writing and English academic writing.

5.4 Different thinking styles affect differences between academic writing in Chinese and English

Students pointed out three areas which differ between English and Chinese academic conventions. (1) Different thinking styles affect academic writing. (2) Chinese academic writing and English academic writing are two different systems. (3) Cultural difference takes effect in the difference in academic writing in English and Chinese.

5.4.1 Differences in word usages

Three students Student Li, Cao and San pointed out their views about the differences in English and academic writing, which are as follows。

> Student Li: *After one year's study, I found that nouns are dominant in English academic writing. Verbs can be directly used in various components of sentences in Chinese writing, and verbs are dominant in*

Chinese academic writing.

Student Cao: *There are differences in word usages in English and Chinese academic writing. I feel that nouns are used often in English academic writing. English collocations are also very challenging for me.*

Student San: *I made some progress in English academic writing. However, I still feel difficult in nominalisation, collocational differences and cultural differences in English academic writing.*

Nominalisation (the use of nouns instead of verbs or adjectives) is considered to be an important feature of academic style in many genres of western academic writing. There are differences in the frequencies of use in terms of verbs, nouns and prepositions, which may be caused by different thinking preferences. Chinese thinking tends to be more concrete and English writing tends to be more abstract (Liu and Zhou, 2004). Chinese is dynamic in which verbs are used more whilst English is static in which verbs are used less. In English, abstract nouns and prepositions are used to express abstract concepts. Chinese learners are easily influenced by their Chinese thinking habits and neglect differences in these two languages. For example: *Whether these students are aware of cultural difference needs to be discussed in this research* (Student Wei). In English academic writing 'the discussion of something' is used more than 'something needs to be discussed'.

There are collocational differences. English collocations are difficult for Chinese students. There are examples: 'fast food' is used, not 'quick food'. 'financial crisis' is used, not 'financial problem'. Some Chinese expressions cannot be translated to English according to the literal meaning

Cultural differences do exist. Language is the carrier of the culture in which it is used and culture embodies the language in which it is formed (Wang and Wen, 2002). Some connotations in Chinese may be meaningless in English or vice versa.

5.4.2 Syntactic differences

Student Ju and Wei stated their difficulties in tenses in English academic writing, they said:

> Student Ju: *I feel it challenging in English academic writing. I often made mistakes in verb tenses in my writing assignments.*
>
> Student Wei: *I often made more mistakes in verb tenses in speaking than in writing. Tenses in English are difficult for me to grasp.*

Syntactic differences may be caused by different thinking styles (Liu and Zhou, 2004). Nida (1982) stated that what counts most is the antagonism between hypotaxis and parataxis in regard to Chinese and English in linguistics.

Tenses in English are richer than in Chinese. In English sentences, pronouns, numbers, tenses, voices and moods are all restrained by time and space and are ruled by grammar. In comparison, Chinese is more flexible in tenses. There is one example from the writing of a participant student. “She *began to teach English for three years and four months to the day* (Student Wei)” is not correct. “Begin” is a momentary verb, which is inconsistent with the time adverbial “for three years and four months”.

Student Tu and Xue pointed out that there are differences in the prominence of subjects and themes in English and Chinese academic writing, they said:

> Student Tu: *In my writing assignments, readers can tell that I am not a native English speaker because I am used to writing sentences which are usually composed of a topic and comment.*
>
> Student Xue: *In pre-sessional course lecturers taught me that there are differences in the prominence of subjects and themes in English and Chinese academic writing. However, it is difficult for me to understand the difference when I am writing.*

English differs from Chinese in the prominence of subjects and themes. English is hypotactic and subject-prominent, for which the theme is often the subject of a sentence. In contrast Chinese is paratactic and topic prominent. In English the subjects in sentences are usually nouns, pronouns and noun phrases whilst in Chinese they may appear in a variety of forms. In Chinese, time and behaviour can also be used to act as subjects apart from people and things. In terms of part of speech, nouns, noun phrases, pronouns, verb phrases, preposition phrases and a whole sentence can be the subject of a sentence. Chinese sentences are usually composed of a topic and comment. English sentences are commonly composed of a subject and a verb. There is one example of how English differs from Chinese from a participant student. "*Summer is difficult to preserve food* (Student Ju)." Their meaning is that it is difficult to preserve food in the summer, but the choice of sentence subject causes a problem.

Student Zhao and Liu stated the difference in the syntactical structures in English and Chinese academic writing, they said:

> Student Zhao: *I like using the phrases that are 'I think' and 'we think' to express my ideas in my writing.*
>
> Student Liu: *My writing is influenced by Chinese thinking and the objective voice is used quite a lot in my writing.*

English sentences tend to be more objective and inanimate subjects are preferred, in which the passive voice is used more than in Chinese. In Chinese animate subjects are preferred. Whilst writing in English Chinese students find it hard to break away from their mother-tongue thinking and challenging to make sentences with inanimate subjects. In the emails with participant students, student Ju and student Zhao expressed the feeling of thankfulness. They wrote "*I cannot express my thankfulness in words* (Student Ju and Student Zhao)." instead of "Words cannot express my thankfulness." Influenced by their Chinese thinking style, Chinese students tend to use pronouns like 'I' and 'We' as the subjects of sentences as they are likely to express ideas from the speakers'

perspectives. They like structures beginning with ‘We think’ or ‘I estimate’ bearing a strong tinge of subjectivity. However, structures like ‘It can be argued that’ or ‘It is estimated that’ are supposed to start an argument in English academic writing. In many genres of western academic writing the passive voice is preferred, Chinese students may find it difficult not to use ‘I’ or ‘we’ (Lecturer Keith).

Student Li, Cao and Lu added more views on the syntactic differences in English and Chinese academic writing, which are in their words.

> Student Li: *It is more likely that important components are put in the front of sentence.*
>
> Student Cao: *When I am writing, I am used to using propositional phrases to start a sentence.*
>
> Student Lu: *At the end of my master’s learning journey, I realize that there is difference between the position of the focus of a sentence in English and Chinese academic writing.*

The focus of a sentence is at different positions in Chinese and English. Although the focus is generally placed in the conclusion, argument and fact in the two languages, it usually is located in different positions. In English the focus of a sentence is usually in the first half whilst in Chinese it is commonly in the latter half. Westerners are used to place the main idea at the beginning and then followed by other information to make a supplementary. Chinese prefer simple and short sentences with modifiers in the front and the focus is at the back. Chinese syntax is circular with introductory information such as time, place, reason and condition at the beginning and the theme is at the end. There are examples as follows:

> *On the whole, from the literature, some researchers believe that teachers expect and students may be in some cases between the positive correlation* (Student Ju).

Under the pressure of examination and enrolment rate even students in primary school level, students encounter with tremendous challenges (Student Lu).

5.5 Findings on different rhetoric patterns in writing

Kaplan (1966) pointed out that every language and culture has a unique rhetoric. Logic and rhetoric are interdependent and in particular language thinking order and grammar are interrelated. Students pointed out three points on different rhetoric patterns in writing, these are: (1) The way of expression in Chinese is relatively implicit and the way of English is more direct. (2) In English academic writing, the writer needs to make the argument easy to understand. (3) In Chinese academic writing, the reader needs to create more understanding and more interpretation. Lecturer Mark also stated that:

> *The rhetoric is very important. So a lot of people will tend to suggest that Chinese students' writing is a linguistic problem. It is not. Or it can be, you can get students who have quite weak language. Generally speaking, it is not a linguistic problem, it is rhetoric problem. The reader plays a more active role in interpreting the arguments. The reader in English is more passive. The reader in Chinese needs to create more understanding and more interpretation. English writing style is linear, while Chinese writing style is circular.*

There are differences in the development of discourses. In English, the theme often appears at the beginning of an article, demonstrating the argument. English paragraphs and articles often begin with a concise topic sentence, followed by convincing arguments. In contrast, discourses in Chinese often begin with seemingly irrelevant topics. Chinese thinking tends to be circular. Arguments are usually given in a circumlocution way. Repetitions are used around the theme in a circular way.

Chinese international students used avoidance strategy in English academic writing, which was in the words of Student Li, Liu, Ju, Tu and Wei.

Student Li: *When I am thinking, I can think in a complicated way. However, my language ability is not good, I try to write in an easy and simple way in English, which cannot fully express what I think.*

Student Liu: *I can think in a sophisticated way and I can only write in English as simply as I can.*

Student Ju: *My English ability is not good. I try to write in a simple way.*

Student Tu: *I find language is a barrier in writing in English. I intend to write in a quite simple way.*

Student Wei: *My English is not good. Sometimes I try to avoid writing some complicated ideas in English.*

This finding shows that avoidance strategy is a common phenomenon in second language writing among Chinese international students. Different thinking styles and rhetoric patterns in writing may cause avoidance strategy in second language academic writing.

5.6 Findings and discussion on academic writing in China

Student Liu, Wu, Tu and Li gave their ideas in academic writing in China, which are as follows:

Student Liu: *The requirements of English papers are stricter than those of Chinese thesis. The reliability of data or the rationality of the whole structure is higher than that of Chinese papers. The requirements of Chinese papers are less strict in data reliability and logic. When Chinese scholars write research papers, data is not sufficient, and the methods are not rigorous enough. The conclusion came very suddenly. When I return to China, I shall be stricter in life and work.*

Student Wu: *English academic writing is strict and the reliability of data is necessary.*

Student Tu: *In the form of writing, I wrote a lot of slogans in China, which is not appropriate in the UK.*

Student Li: *Articles in English academic writing are relatively easy to understand. The research methods are easy to be understood and used. English academic writing is stricter in using references than in Chinese academic writing.*

Students pointed out that (1) English academic writing is strict in using reference. (2) The reliability of data and the whole structure is stricter in English academic writing. Tian and Low pointed out that: “the training that Chinese students received in China may not have prepared them well for academic writing at an advanced level in the UK” (Tian and Low, 2012, p.299). The idea from interviews furtherly proved this opinion.

The goal of College English teaching in China is to focus on the English comprehensive skills (Chinese Ministry of Education, 2007). Teachers and lecturers focus on teaching vocabulary, pronunciation, grammar, sentence patterns and analysing the structure of simple texts, which is difficult to challenge their own cognitive skills and promote their own thinking. The development of teachers is one key of teaching. If teachers and lecturers cannot teach students how to write critically, even if they may not know how to reference properly and how to make sure the research data reliable, there is no wonder for students to say that the training in academic writing they received in China has not made them ready to study in the UK.

The teaching of academic writing is necessary for Chinese international students. As lecturer Harry mentioned:

The challenge is to help Chinese students adapt to a different written form, a more, sequential form, which is something rather different – not

unrelated, but it is different. It is not that we're dealing here with an absence of criticality, we're dealing here with the challenges around the transform, of asking them to transform the way they express and represent the criticality they already have (Lecturer Harry).

Some participant students found that their pre-sessional English course was more useful than the main course of their Master's degree in developing their critical thinking. Some example comments were:

Student Xue: *I learned academic writing from pre-sessional English course, which gives me a lot of help. I made less progress in the main course.*

Student Wu: *Pre-sessional English course is very useful to develop my critical thinking. The main course does not help me with my critical thinking.*

Student Tu: *Lecturers in pre-sessional English course teach me how to write critically.*

Critical thinking is at the centre of academic life, and critical thinking is most meaningfully developed with students in contexts while working on specific contents of interest. It is important that the delivery of a Master's programme in any subject is related to an explicit treatment of critical thinking skills. Language tutors may have an important and useful set of skills to apply to the Master's programme. Like lecturer Harry said:

This situation can be improved enormously for the students by following two possible steps, or both of them. One is for language tutors to work closely with master's teaching teams and perhaps help us develop materials that can better support students to develop their critical thinking skills. That's one option, the other option is at particular times throughout the course bring the Pre-sessional English course tutors in for more advanced work on critical thinking. The students can contextualise the input, and the language tutors, because they have a very well developed

sensitivity to the difficulties around critical thinking, what it is, and how students can optimise their skill development in this area. They can come in and deliver sessions on the course, and I think some collaboration is needed, and that collaboration doesn't happen right now (Lecturer Harry).

5.7 Chapter summary

Lecturers give students topics in their writing which can develop their critical thinking. After studying in the UK for one year, Chinese international students made progress in demonstrating critical thinking in their academic writing. Once an assignment question has been analysed and understood, students find arguments to answer the question which involves the process of collecting data and forming judgments. They also pay attention to comparing and contrasting, which involves clarification and evaluation of evidence. Chinese international students can demonstrate more than one perspective in their writing, which shows that it is not enough to only evaluate single argumentation and reasoning. They have their own views and can express a position or view on the main questions or topics.

Critical reading is promoted by lecturers and can benefit academic writing. Chinese international students are able to improve by demonstrating critical thinking skills in their academic writing. However, they may not have improved in affective dispositions and emotional qualities of critical thinking such as passion for exploring the unknown, vigilance of their own prejudices, and an open attitude towards dispute. It can be challenging for them to break the consciousness of self-protection and be open-minded. Critical thinkers should have certain affective dispositions and emotional qualities

Although there is no direct relationship between language ability and critical thinking, language can be a barrier in writing critically for Chinese international students. They may use avoidance strategy in English academic writing.

There are differences between English and Chinese academic writing. Different thinking styles affect the word usages and syntax. Students realised the

difference in rhetorical patterns in writing. These differences make English academic writing more challenging for Chinese international students. In addition, teachers and lecturers in China may not know how to reference properly and how to make sure the research data is reliable. It has been proven that the training in academic writing that Chinese students received in China has not prepared them well for academic writing at an advanced level in the UK.

It is necessary to teach Chinese international students the skills and conventions of academic writing and a pre-sessional English course is highly recommended by the participant students. However, it is important that the delivery of a Master's programme in any subject contains an explicit treatment of critical thinking skills. Language tutors may have an important and useful contribution to the development of critical writing skills to feed into the Master's programme, but the programme itself needs to play a part.

Chapter Six: Findings and discussion from the third research question

RQ3: *What factors contribute to the development of critical thinking of these Chinese international students?*

This chapter will explore the third research question which examines the factors contributing to the development of critical thinking of Chinese international students from the perspectives of:

- teaching pedagogies
- feedback
- power distance

6.1 Students' views on teaching pedagogies

In the semi-structured interviews with the participant students, there were two interview questions exploring the third research question. The first interview question was:

What teaching pedagogies contribute to students' development of critical thinking?

The chart below shows the student responses in their first round of interviews.

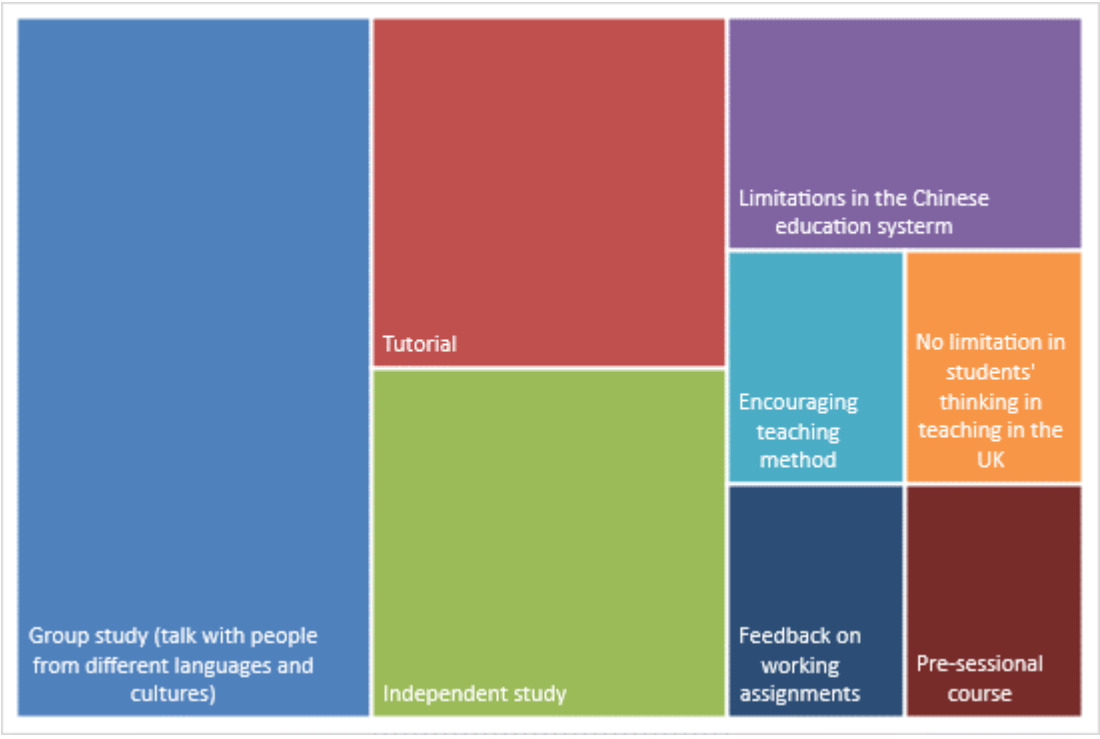


Figure 6.1—Coded categories of the responses of students in the first round of interviews on the teaching pedagogies which can contribute to their development of critical thinking.

Six participant students stated that 'group study (talk with people from different languages and cultures)' can contribute to their development of critical thinking skills.

> Student Zhao: *Encourage group work.*
>
> Student Li: *Group study is conducted in each class. I can contact people from different nationalities, ages and experiences and acquire information.*
>
> Student Liu: *It is more comprehensive to discuss questions together.*
>
> Student Ju: *Group study is helpful for me. I can acquire different opinions. People of different languages and backgrounds will have different opinions and thoughts.*

Student Wu: *Group study is very effective, and I can listen to other people's opinions.*

Student Wei: *Seminar is helpful for my learning.*

This category of 'group study (talk with people from different languages and cultures)' can be regarded as one typical method in developing critical thinking. Student Cao pointed out that: *"In China, students accept what teachers tell them, which has limitations*". Compared with the spoon-feeding teaching methodology, group study, when effectively organized, is held to be more effective in encouraging students to discuss and ask questions. Student Li especially explored that she could communicate with people of different nationalities, ages and experiences and acquire information while exchanging knowledge and ideas. Paul's theory emphasizes the role of dialogue, arguing that a critical thinker can recognize different world views and can talk to people with different world views and cultural backgrounds (Paul, 1993). Group discussion helps students explore questions from different perspectives and allows them to listen to others' opinions voluntarily.

Three participant students stated that tutorials can contribute to their development of critical thinking specifically, in the words of Student Li, Wu and Wei presented here:

Student Li: *Tutorial is helpful with the development of critical thinking.*

Student Wu: *In tutorials it is very helpful for tutors to give advice on my writing.*

Student Wei: *Tutorial is helpful with the development of my critical thinking.*

In tutorials students can seek answers or information and independently construct meaning and understanding under the guidance of teachers, through discussion with their tutor, reflecting upon their own ideas and explaining and critically analysing the ideas. The guidance of teachers can effectively promote

students to explore the depth and development of knowledge and promote the continuous improvement of students' use of inquiry learning thus enhancing the quality of thinking skills, analysis and critical ability.

In order to acquire a comprehensive understanding of the elements which can contribute to the development of Chinese international students' critical thinking, students were asked a second question:

What factors contribute to your development of critical thinking?

The findings from the first round of students' interviews were categorised as can be seen in the following figure 6.2：

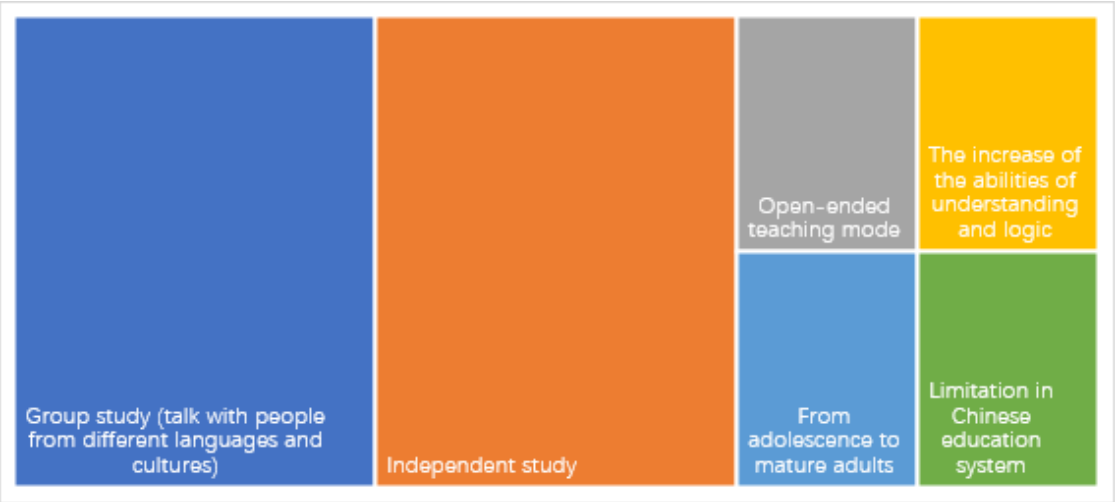


Figure 6.2—Coded categories of the responses of students in the first round of interviews on the factors which can contribute to their development of critical thinking.

Compared with data from figure 6.1, data from figure 6.2 shows that there were two principal perspectives on the development of critical thinking, which were not directly related to the impact of teaching pedagogies. These related more to processes of maturation. Student Xue stated that: "*Understanding ability and logical thinking ability have improved, which can contribute to my development of critical thinking. Understanding ability is that I know what I need to say. Logical*

thinking ability is planning how to show critical thinking, which is not a mess of words". The increase in the abilities of understanding and logic can be acquired in several ways. If students improve their logical thinking, they may master the way of thinking and the process of induction, deduction and reasoning, which can contribute to critical thinking. Logical thinking ability itself is a display of ability to analyse, evaluate and make decisions, and is a manifestation of a rational spirit. This is also consistent with the training objectives of critical thinking. Student Lu also stated that: "*As people grow older, attitudes to the world are different from before. The development of knowledge and cognitive ability is helpful to critical thinking. Puberty looks at problems extremely. Now I am more mature with time passing by and I know looking at questions dialectically*". What the participant student said shows that the traits of critical thinking are associated not only with working experience but also with maturity. With the increase of age, learning and life experience continue and as a result knowledge and skills can be accumulated continuously, as suggested in theories about adult learning (Jarvis, 2006). Students' critical thinking ability can be progressively strengthened, and their self-confidence can also become stronger.

The findings from the second round of students' interviews were categorised as can be seen in the following figure 6.3：

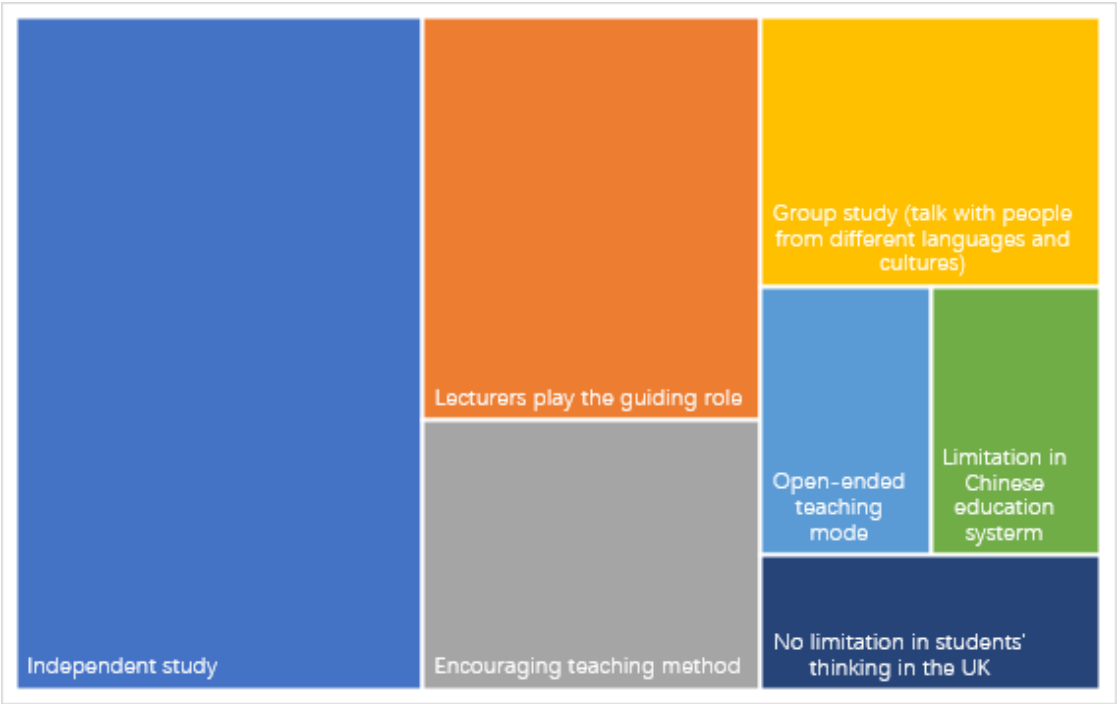


Figure 6.3—Coded categories of the responses of students in the second round of interviews on the teaching pedagogies which can contribute to their development of critical thinking.

Five students had the opinion that independent study which includes reading extensively and writing independently can contribute to the development of critical thinking. It was common for students to emphasise the contribution of private autonomous study to the development of criticality and enhanced critical reading and writing skills, for example:

> Student Liu: *I know how to structure my own writing through independent writing.*
>
> Student Lu: *I explore things by myself. I have improved mainly from reading and writing by myself.*
>
> Student Tu: *I want to develop critical thinking through reading and writing by myself.*

Student Wei: *Before I do my assignment, reading good article, reading samples and reading essays by myself can help me a lot.*

Student Xue: *Reading and writing independently were improved.*

Students stated that reading and writing by themselves rather than in a group or in a classroom can help them to develop their critical thinking. Reading and writing independently is part of self-regulated learning, and the students repeatedly mentioning this could indicate that they are not passive, but aware of how they had agency in their own learning. This is reflective thinking about education for a very long time in both Eastern and Western traditions. For example, Dewey's advocacy of learning by doing emphasises students' self-regulated learning (Dewey, 1991). Socrates deemed it necessary to accomplish knowledge through "spiritual midwifery" (Saran and Neisser, 2004). It is necessary to inspire and induce students, to stimulate students' thinking and to actively seek answers to problems. So, self-regulated learning had taken shape in Socratic ideas. 'The Book of Rites' of Confucianism (before 211 B.C.) contains the idea that we need to learn extensively which requires reading and writing independently.

Three participant students had the opinion that lecturers play a guiding role especially in their case where the teaching mode is student-centred. In the words of Student Lu, San and Wu:

Student Lu: *Tutor guides and then I explore things by myself.*

Student San: *Lecturers lead students to read and analyse essays.*

Student Wu: *Lecturers guide students to solve problems. Student directed teaching method can help to improve critical thinking.*

Student Lu, San and Wu praised the formative guidance of their lecturers rather than being offered a spoon-feeding teaching mode. Again, this approach is supported by Dewey who recommends a problem-solving method which is to

doubt, form questions, develop alternative solutions, use reasoning, implement the solution and evaluate the outcome (Dewey, 1991). This teaching pedagogy where lecturers play the guiding role enables lecturers and students to explore together, rather than just engaging in a one-way transmissive mode of teaching. Students may find problems and put forward hypotheses around certain teaching contents and materials. Then students seek answers or information independently by collecting data, under the guidance of lecturers, through exploring and discussing the value and evidence that support differing opinions on a subject.

The findings from the second round of students' interviews were categorised as can be seen in the following figure 6.4:

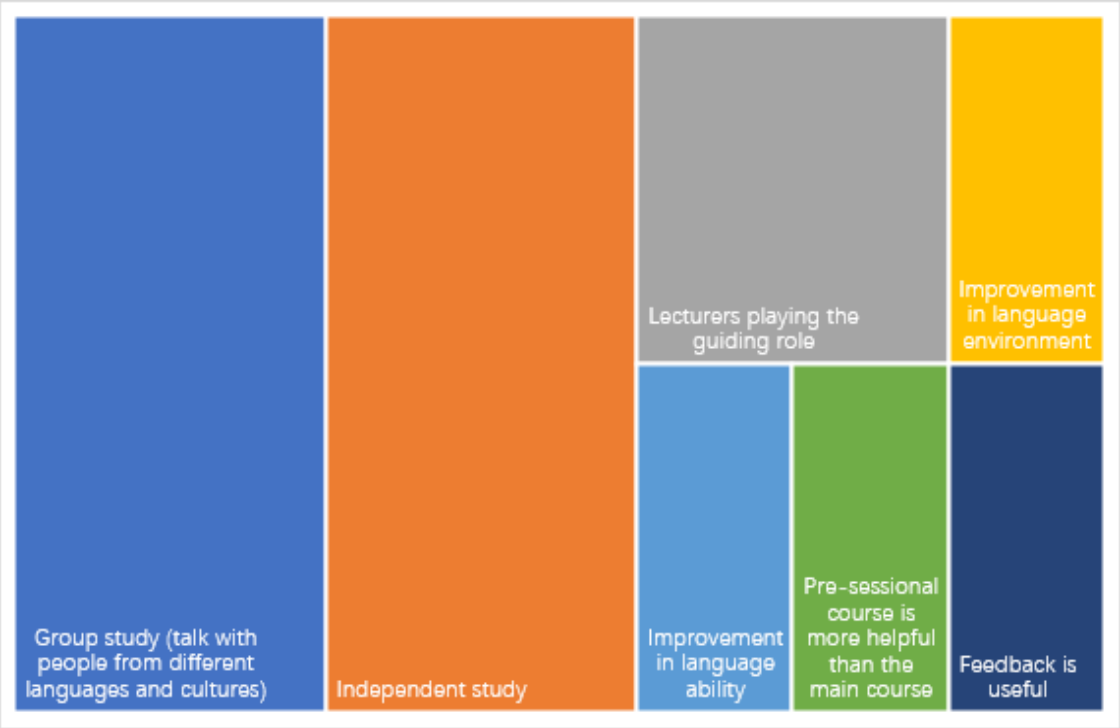


Figure 6.4—Coded categories of the responses of students in the second round of interviews on the factors which can contribute to their development of critical thinking.

Participant students pointed out the teaching pedagogies which are the categories of group study, independent study and lecturers playing the guiding

role, they are in the first three positions. Apart from this, Student San and Ju stated that improvement in language environment and language ability can also contribute to their development of critical thinking. This result is in keeping with the ideas of Dewey (1920). Dewey proposed that language and thinking are closely related to each other.

The findings from the third round of students' interviews were categorised as can be seen in the following figure 6.5：

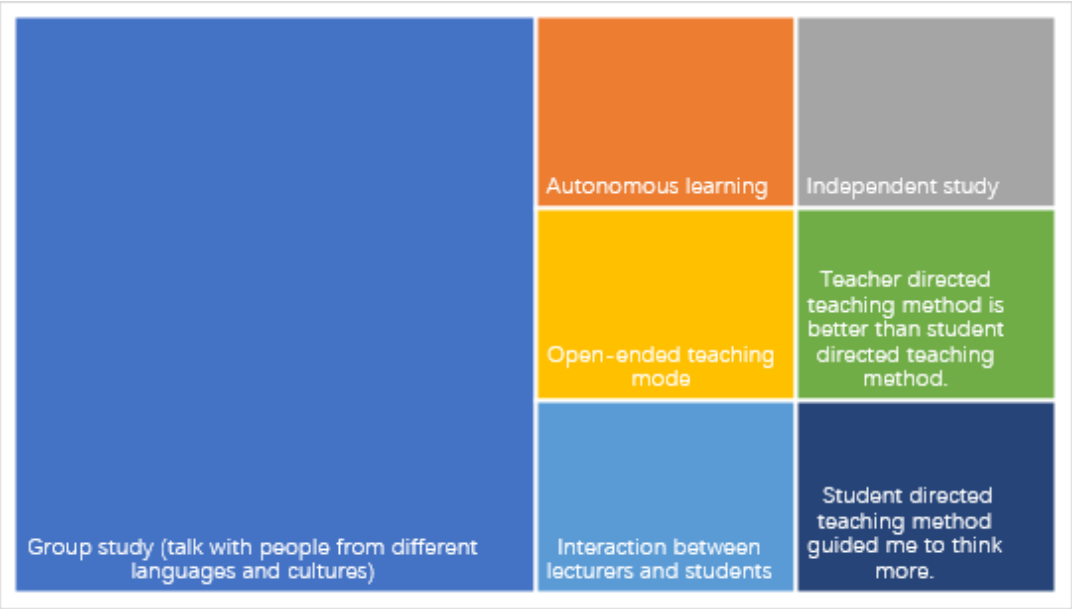


Figure 6.5—Coded categories of the responses of students in the third round of interviews on the teaching pedagogies which can contribute to their development of critical thinking.

Six participant students still expressed that 'group study (talk with people from different languages and cultures)' can contribute to their development of critical thinking at the final stage of their Master's degree study.

> Student Zhao: *Strengthen discussion and encourage group discussion.*
>
> Student Lu: *Group discussion. It is better to discuss with people from different culture.*

Student Liu: *Group discussion not only contributes to understanding theoretical knowledge, but also to the development of thinking.*

Student Wu: *Group study. For example, one lecturer taught one theory. She let students discuss it firstly. At that time, everyone discussed it very well. I felt that I can express my opinions freely without worrying whether the answer is right or wrong.*

Student Tu: *Group study is quite useful.*

Student Wei: *Seminar. Because we communicate with each other, I can learn different ideas.*

Students Lu, Liu and Tu gave reasons that in group study, discussion with people from different cultures contributed significantly to the development of one's thinking.

Student Lu: *It is better to discuss with people from different culture and different languages. Participants who are all Chinese may have similar ideas. Participants who are from different cultures may have other new ideas, which may help my thinking.*

Student Liu: *Some students in my course already have some teaching experience. People from different languages and experiences can practise oral English and give each other advice in theory and teaching experience.*

Student Tu: *The ideas of each student are different, and the discussions with students from different cultures and nationalities are more effective than those discussions just with Chinese students. Chinese students may have similar ways of thinking due to the same educational environment. Students from different countries have received different education and their thinking and views are different.*

It is more challenging to have group study in China because the number of students in classrooms is large. As Student Liu pointed out: "*In China, the number of students is large, lecturers do not give time for students to discuss*". This is perhaps understandable if the lecturers are under pressure to cover the curriculum and also deal with very large numbers of students.

The findings from the third round of students' interviews were categorised as can be seen in the following figure 6.6:

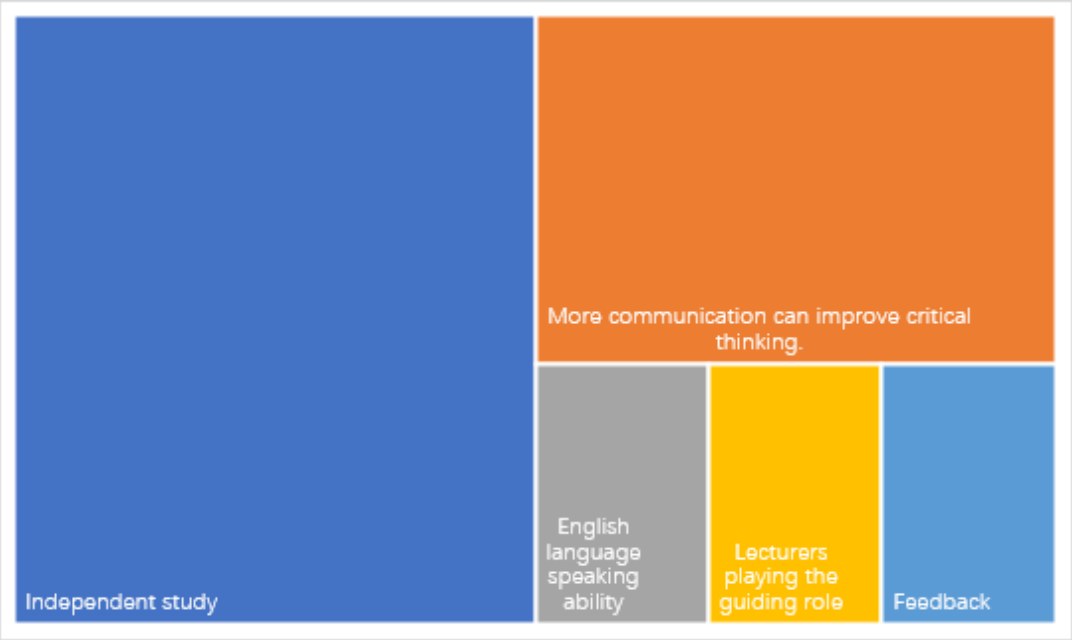


Figure 6.6—Coded categories of the responses of students in the third round of interviews on the factors which can contribute to their development of critical thinking.

In this chart, 'Independent study' again features prominently, however, students also expressed the position that 'more communication can improve critical thinking'.

> Student Li: *If my English-speaking ability is better, I will find it easier to communicate with others. More communication can improve critical thinking. English language speaking ability is important.*

Student Xue: *The second is discussion, which contributes to the development of critical thinking regardless of email or conversation.*

Student Cao: *Lecturers should make more communication and contribution to the students. Between me and lecturers there needs to be more discussion, more communication.*

Student Liu: *Communication with other people can contribute to the development of critical thinking.*

Students showed that they need more communication with peers, friends and lecturers. Communication with people can increase their English language speaking ability, they believed very firmly. It can also help Chinese international students adapt to UK society more easily. Consequently, they suggested that lecturers can offer more chances for students to communicate with themselves directly and encourage students to ask questions. Students felt that Universities in the UK can create more chances for students to communicate with each other.

6.2 Lecturers' views on teaching pedagogies

In addition to the participant students' interviews, lecturers were also interviewed to explore their perspectives on how they illustrate, make explicit and enable engagement in critical thinking and writing in the classroom. These are the responses from the participant lecturers. Lecturer Wendy said:

> *I approach this question in two ways, in the general way and in the specific way. I require my students, doctoral students in particular, to read one journal article per day and reread their writings again and again. What I did with my master's students was to arrange interactive sessions. I think I should lead them with a specific project.*

Lecturer Wendy stressed the importance of reading journal articles and also of students reading and critically reviewing their own writing. She also mentioned the importance of guiding students in their study in a context-specific and

purposeful way. Lecturer Wendy said: "*You have to contextualize in their individual products. So what I did was that I created a research project with them".* She accompanied students in the research project in a collaborative way, observing and feeding back formatively on their activity. "*From the very beginning of identifying the research issue, we worked together. We planned and designed the research together, collected data together, was helping them with a specific research project. I observed their data collection, observed their interview skills. On the return trip, I reported to them my observations and how I would do it differently"*. Lecturer Wendy pre-designed research projects for students and led students to work with her.

Lecturer Mark added his opinion:

> *I ask questions, spending time with going through papers with them. I develop an atmosphere and environment for students to ask questions, to investigate stuff, to explore ideas. Encouraging students to ask questions.*

Lecturer Mark focused on encouraging students to ask and raise questions and let students construct knowledge in solving problems.

> Lecturer Helen: *Different ways. So they are exposed to examples. Then we try to encourage them to build, to become conscious of the content of the argument and try to transfer something to their own writing and thinking. And also through discussion. So they are exposed to examples. Then we try to encourage them to build, to become conscious of the content of the argument and try to transfer something to their own writing and thinking.*

Lecturer Helen proposed ways to engage students in critical thinking in teaching activities. Helen also proposed that reducing subjectivity and increasing students' powers to analyse objectively can be developed through group discussion and interaction between teachers and students.

> Lecturer Harry: *Well, it goes back to this point about exemplifying forms,*

instances of critical thinking and I see two main ways of doing that. One is to promote and facilitate critical discussion and then to deconstruct those critical discussions as we discussed earlier. The second one is to provide examples from either students' work or the literature that exemplifies different facts of critical thinking.

Lecturer Harry stated two opinions that (1) critical discussion and (2) guiding students with examples from either students' work or the literature both contribute to develop students' critical thinking.

Lecturer Harry: *By making sure those acts of criticality, those acts of critical thinking such as synthesising ideas, analysing ideas, reflecting on ideas, thinking about the underpinning ideas that support ideas of arguments, practices, by making those the focuses of group discussion, group tasks in an explicit way. One way to do this is to provide a set of competing arguments, you can provide arguments to different groups, you can give the same argument or the same theory or the same policy – whatever it is you want critically analysed, you give these ideas to different groups of students, you give them the same task to critically analyse and we can scaffold that task by what aspects of critical thinking we want the students to exercise in this task. They all do it. And then they can all either verbally, or on charts or they can summarise the outcomes of their discussion and they can compare, and then very often when you do that, groups can learn from each other.*

Lecturer Harry also stated the importance for lecturers to provide a set of competing arguments, as a result of which group discussion with peers and discussion between lecturers and students are promoted. Comprehensive summarization is also helpful for the development of students' critical thinking.

Lecturer Keith: *Generally, through group work – it can be quite limited. I do one session on contemporary issues and other sessions on innovational reform. I give them work to read on e-books before the lesson and this is one way for them to have independent enquiry. Also, all of the content is*

on e-book, so they read and come to the class prepared. Then I introduce the learning outcomes and I get them to work in groups.

Lecturer Keith promoted independent study and he gave students e-books to read before the lesson to have independent enquiry. Group study is also recommended to help students with their critical thinking.

6.3 Conclusion on teaching pedagogies

According to the analysis of the above interviews, students recommended some teaching pedagogies which are group study (talk with people from different languages and cultures), tutorials, independent study (reading extensively and writing independently), open-ended teaching mode, lecturers playing the guiding role, encouraging students to ask questions and self-regulated learning. Group study can give students chances to talk with people from different languages and cultures. Tutorials between lecturers and students can effectively contribute to the development of students' critical thinking. Independent study (reading and writing by themselves) is also necessary in the development of their critical thinking.

Lecturers stated that they pre-design research projects for students, guide students with examples, provide a set of competing arguments, give students work to read on e-books before the lesson. They promote several ways which are guiding students in their study, encouraging students to ask questions, investigate and explore ideas and summarize the outcomes from discussions.

6.4 Students' views on feedback

In the interviews on the feedback with participant students, the interview question is:

Have you found the feedback helpful in guiding you to understand your ability to write critically and what you need to do to improve your critical writing?

The findings from the first round of students' interviews were categorised as can

be seen in the following figure 6.7:

Figure 6.7—Coded categories of the responses of students in the first round of interviews to whether students have found feedback helpful in guiding them to understand the ability to write critically and what they need to do to improve their critical thinking.

Four participant students had a position in the category that feedback only guides to a certain extent, in the words of Students Xue, Lu, Ju and Wei.

> Student Xue: *Up to now, lecturers' feedback plays the role of guiding, not leading.*
>
> Student Lu: *Now the progress is not so big as before. Tutors do not tell me how to write. When you encounter problems, tutors will give you guidance.*
>
> Student Ju: *Feedback is useful to a certain extent.*

Student Wei: *Critical thinking is very important in academia. Lecturers give me guidance in the direction. Feedback is quite general and less targeted.*

Student Lu and Wei complained that the feedback they received is not very useful in academic writing.

Four participant students had a position in the category that feedback in their Pre-sessional English course is helpful, in the words of Students Xue, Lu, Wu and Tu.

Student Xue: *Feedback was very helpful in my pre-sessional course.*

Student Lu: *The help from lecturers was very great in the pre-sessional course.*

Student Wu: *Pre-sessional course is very helpful to critical thinking, and main course is less helpful to critical thinking.*

Student Tu: *Critical thinking has improved in doing projects in Pre-sessional course.*

Tutors may believe that their pedagogies are located in developing students' higher order thinking skills by asking questions and provoking thought rather than giving answers. However, some students found it challenging to adapt to this pedagogy.

Three participant students had the position in the category that feedback is helpful with their thinking. Student Zhao stated that her critical thinking had been improved by her feedback. Students San and Liu also made this point.

Student San: *Secondly, my views are not comprehensive. Tutors gave me feedback, which can give me help. The feedback can remind me of what I did not expect. I will think more comprehensively.*

> Student Liu: *Feedback is helpful for the improvement of critical thinking. I do not look at questions in a very comprehensive way. Tutors can look at questions more comprehensively.*

However, two other participant students had an opposing position from the view that feedback is helpful with thinking. Student Wu stated that feedback is helpful with her writing, but it is not helpful with thinking or critical thinking. Student Tu also said: "*The content of critical thinking given by tutor in the feedback is relatively small, which does not contribute a lot to the development of critical thinking*".

In the first round of interviews, the critical thinking of eleven participant students show different starting points. In a cognitive level, Students San and Liu realised that the feedback from their tutors can help them with their thinking and critical thinking. "*My views are not comprehensive. Tutors give me feedback, which can give me help. The feedback can make me aware of what I did not expect. I will think more comprehensively*" (Student San). "*Feedback can give me new directions and knowledge*" (Student Liu). However, Student Ju had difficulties in understanding the feedback from his tutors. "*I have some difficulties in understanding the tutors' English thinking. I can only accept part of tutors' views*" (Student Ju).

The findings from the second round of students' interviews were categorised as can be seen in the following figure 6.8:

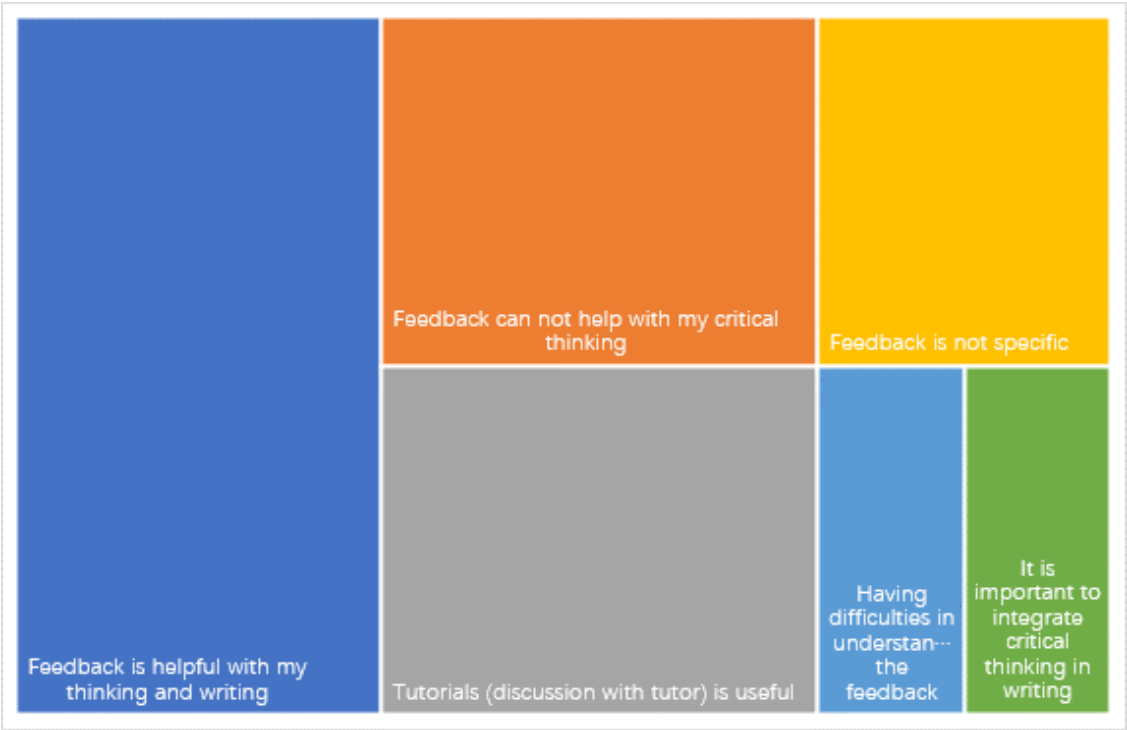


Figure 6.8—Coded categories of the responses of students in the second round of interviews to whether students have found feedback helpful in guiding them to understand the ability to write critically and what they need to do to improve their critical thinking.

Five participant students had the position that feedback is helpful with their thinking and writing, in the words of Students Li, Cao, San, Liu and Wei.

> Student Li: *Feedback is helpful to the logic of the whole article and the language used in the article.*
>
> Student Cao: *I have limitation in thinking of questions and it is difficult for me to find the right direction. Feedback can point out my advantages and disadvantages.*
>
> Student San: *The feedback of lecturers helps me to analyse and I can acquire a more comprehensive view.*
>
> Student Liu: *Apart from grammar advice, lecturers gave advice to broaden*

my horizons.

Student Wei: *The feedback is very specific and gives me a correct direction. The feedback from my first marker is specific and in detail.*

However, there are three participant students at this stage who did not find feedback helpful in improving their critical thinking. Students Xue, Wu and Tu stated:

Student Xue: *Feedback from lecturers is not very helpful in critical thinking, quite limited.*

Student Wu: *My feedback is mainly about the structure, grammar and expression of my writing. But the feedback does not mention my thinking and critical thinking.*

Student Tu: *My feedback rarely mentions critical thinking, it mainly mentions language use and article structure.*

In addition, three participant students Xue, Lu and San pointed out that tutorials (discussion with their tutors) can be helpful with their thinking and writing.

Student Xue: *Tutorial before coursework is useful.*

Student Lu: *Feedback from tutorial is useful. For example, once tutor advised me to pay attention to details in my writing.*

Student San: *I provide outline in the tutorial before the writing. Tutors can help me to analyse and sometimes can narrow the scope of my research.*

The findings from the third round of students' interviews were categorised as can be seen in the following figure 6.9:

Figure 6.9—Coded categories of the responses of students in the third round of interviews to whether students have found feedback helpful in guiding them to understand the ability to write critically and what they need to do to improve their critical thinking.

There are six participant students who had the position that feedback can be helpful in their thinking and writing. Students Li, Cao, San, Liu, Wu and Wei stated:

> Student Li: *Lecturers point out the places that I can improve in detail in feedback.*
>
> Student Cao: *The lists are very clear about what I need to improve. I will assess their opinions when I look at my feedback.*
>
> Student San: *Feedback gave me something that I did not think of. Lecturers point out the things that I am not clear about. Lecturers point out some problems that I did not realise.*
>
> Student Liu: *I may not think through in my writing, and I still have a lot of disadvantages in the use of language and grammar. By reading lecturers'*

feedback, I can see the points that I did not notice.

Student Wu: *I used to think that my feedback from markers was useless, and I got more help from my pre-sessional course than the main course. I began to think carefully and reflect myself after I failed one course earlier.*

Student Wei: *Lecturers point out my specific and general problems. I not only know where the problem is, but also know how to modify it.*

Student Wu self-reflected that she used to think that her feedback from markers was useless. In the third round of interviews, she realised that the feedback from markers was useful after she failed one course.

Students had the awareness that feedback can be helpful in their thinking and writing in the third round of interviews. However, three participant students found it difficult for them to understand the feedback from their tutors, which can be seen in their answers of Student Ju, Wu and Wei.

Student Ju: *I feel that the feedback is useful, but I do not have the ability to fully understand it.*

Student Wu: *I still have difficulty in understanding the lecturers.*

Student Wei: *I may still have problems in written feedback.*

Several students had their own opinions on answering the question of whether they have found feedback helpful in guiding them to understand the ability to write critically and what they need to do to improve their critical thinking. Student Xue, Wu and Tu pointed out the idea that peer discussion can contribute to the development.

Student Xue: *After I finish writing, I will discuss the writing and feedback with my friends. They will give me some pertinent advice.*

Student Wu: *I still have difficulty in understanding the lecturers. It is easier for me to communicate with my peers.*

Student Tu: *If I don't understand the feedback, I will ask my peers.*

Student Lu and Wei added their opinions on this question that tutorial (discussion with tutor) is helpful with their writing and thinking.

Student Lu: *Lecturers will point out my problems in thinking whilst I am communicating with them before I submit my writing.*

Student Wei: *The feedback from tutorials is more specific and in detail. I can directly communicate with lecturers.*

Comparing the three charts, the category that feedback is helpful with students' thinking and writing was in the third place of all the ideas in the first round of interviews. Although this category moved into the first position in the second round of interviews, several students had the opposite idea that feedback does not help with their critical thinking. At the final learning stage of their Master's degree, even more students consider that feedback is helpful with their thinking and writing. However, the eleven participant students present unbalanced development traits of critical thinking. Three students still needed more help in understanding the feedback from their lecturers.

6.5 Lecturers' views on feedback

In addition to the students' interviews, lecturers were also interviewed to explore their perspectives on how they use feedback to help students to improve their writing and critical thinking. The following is the responses from participant lecturers.

Lecturer Wendy: *I set up the assignment briefs and marking criteria. When I design those, I try to use language that makes sense to my students. My feedback is specific. I point to students' writing examples and I show them*

how to improve it. I guide my students in a specific way and consider their needs.

Lecturer Wendy pointed out that she gave students specific feedback. She is originally from an Asian background and her first language is not English. She emphasised the language she used in setting up the assignment briefs and marking criteria.

Lecturer Mark: *I do quite a lot of linguistic input. I also do a lot of basic argument, synthesis analysis and critical reflection to try to help people understand how to put arguments together. I try to make the feedback as specific as possible. I give an example to ask people to be more critical, to ask them to synthesize their reading more effectively, or they need to be clearer about what theoretical lenses they are using. So I try to be specific rather than just giving them general feedback.*

Lecturer Mark tried to make the feedback as specific as possible. He expressed what he did to help students.

Lecturer Helen: *I try to use the criteria as they are written in the handbook. I try to make the feedback as specific as possible. I do use the language of the criteria of the handbook as basis for feedback so they can see why they are in the grade they are in.*

Lecturer Helen showed that she made specific feedback and she explained the reason to use the language of the criteria of the handbook.

Lecturer Harry: *The important thing there is for lecturers to provide very detailed contextualised feedback on elements of students written assignment that either exhibit or lack evidence of critical engagement.*

Lecturer Harry emphasized the importance to provide detailed feedback for students.

Lecturer Keith: *What I do is read the work and make comments on the left hand side and where possible I edit as well, so that students should hopefully understand how they should be writing and then identify where they show passive acceptance, where they should be summarising and where they should be critical. Then I write the feedback sheet, so they have in-text comments and the feedback sheet. Then I make a judgement of what is the appropriate level of mark. Then I will write formative feedback especially for early stages of assignments, what they should be doing to improve their writing. I sometimes recommend some other sources and tell them I am happy to talk about this.*

Lecturer Keith described the way he did the feedback and the process seems quite complete and specific. From the above lists of the answers from the five lecturers, we can see that different lecturers have different opinions and emphasis. In addition, four lecturers Wendy, Mark, Helen and Harry all pointed out that they give students specific feedback.

6.6 Comparison on the responses from students and their lecturers on feedback

6.6.1 Whether the feedback students received is specific or not

Four participant lecturers all pointed out that the feedback that they gave to students is specific, in the words of Lecturer Wendy, Mark, Helen and Harry.

Lecturer Wendy: *My feedback is specific. I point to students' writing examples and I show them how to improve it. I guide my students in a*

At the final learning stage six participant students in eleven have the position that feedback can be helpful in their thinking and writing. However, several other participant students hold opposite opinions comparing with the answers from their lecturers. Student Xue stated:

Student Xue: *My tutor labelled my result on rating, which shows which rate*

I am at. In this case, it is quite concise. I can see what my problem is at a glance. But because of being too concise, I cannot understand where my specific problems are.

What Student Xue stated matches what Lecturer Helen talked that she tried to use the criteria as they are written in the handbook, which can make students see why they are in one grade or another. But Student Xue complained about the feedback being too concise.

Student Lu also pointed out that the feedback she received is not specific.

Student Lu: *Feedback of the working assignments is not specific (in the second round of interviews). I feel that my markers are a bit lazy. I feel that markers have a sample and they just changed a little by using the sample. My feedback is not specific (in the third round of interviews).*

Student Lu held this opinion in the second and final round of interviews, which shows that her understanding and response on the feedback is different from what her lecturers expected. In addition, there are three participant students who found it difficult for them to understand the feedback from their tutors.

6.6.2 What can increase students' engagement with their feedback

Several participant students stated that tutorial (discussion with tutor) can be useful. In the first round of interviews, Student Li and Cao stated that:

Student Li: *I often meet with my tutor and I can get useful feedback.*

Student Cao: *There is some advice from tutorials. With this advice, I can write the article more clearly.*

In the second round of interviews, three participant students Xue, Lu and San pointed out this opinion. In the third round of interviews, Student Lu added this opinion again and Student Wei stated the same opinion that the tutorial

(discussion with tutor) is helpful with their writing and thinking. Altogether there are six different students, Li, Cao, Xue, Lu, San and Wei who pointed out this opinion.

Lecturers are trying to increase students' engagement with the feedback they received from their lecturers. Lecturer Helen demonstrated: "*It is good to have some conversations with students about their feedback, especially if they have a resubmission*". Lecturer Keith pointed out: "*Academics tend to write in a particular way, and they can look like a research paper, students may struggle to understand academic texts, the feedback is written in a way they find difficult to understand*'. So lecturer Harry stated that: "*there needs to be a closer, more joined up and more explicit relationship between the feedback that the students get and the context of discussions and the teaching and learning that takes place in the seminar room"*.

6.6.3 There is a difference in the feedback students received in China and in the UK

The assessment criteria for essays is different. The assessment criteria in Chinese universities is less strict than in the UK. Student Li, Tu and Liu stated:

> Student Li: *Lecturers pay more attention to the format of essay, and there is not much assessment in other aspects. Lecturers may take a look at whether my writing is logical or not, but they may not care about whether the data is fake or authentic.*
>
> Student Tu: *At the undergraduate level in China, I did not write any essay apart from the graduation paper. The lecturers in China did not give me the feedback and exam method is the main assessment.*
>
> Student Liu: *Feedback in China does not have a mark sheet, which is generally evaluated by lecturers face to face. Lecturers in China pay more attention to the format of the essay. There is no strict requirement for the content of the essay.*

These three students pointed out that Chinese lecturers mostly pay more attention to the format of students' essays, not considering whether the data in essays is fake or not. Student Liu claimed: "*In China, the number of students that tutors need to guide is a lot. Lecturers do not have enough energy to read all the essays students write"*.

6.7 Discussion and conclusion on feedback

There is difference in the feedback students received in China and in the UK. For Bachelor's degree students in China, they may not have the experience of receiving feedback which analyses the content of their writing. After spending some time in the Master's course in the UK, many Chinese international students realise that feedback is helpful with their thinking and writing. However, there is a spectrum of understanding of students - some are developing their understanding more quickly than others. Some students still need more help in understanding the feedback.

As mentioned in the literature review, students may neglect or misunderstand some written feedback from teachers. Students may understand but do not know how to implement some written feedback (Conrad & Goldstein, 1999; Ferris, 1995; Hyland, 1998). The findings support that some Chinese international students find it difficult to fully understand the feedback they acquired from their lecturers. There appear to be differences between the perspectives of lecturers in what their feedback consists of and how it is intended to be used, and how students interpret and use that feedback. This may be partly due to a lack of common understanding of the perspectives of each other. Lecturers think they are doing one thing, but students do not necessarily understand and make use of the feedback in the way that lecturer intends. Lecturers also believe their pedagogies are located in developing students' self-regulated thinking and higher order thinking skills by asking questions and provoking thought rather than giving answers. However, Chinese students are used to be given answers and do what they are told to do with very specific guidance. Although some opinions are given to help students with a better understanding of feedback,

sometimes students may lack the ability to respond to the feedback.

The tutorial in which students can have discussion with their tutors is regarded highly as a means to understand feedback. Peer-discussion on feedback is used by Chinese international students. It can be promoted that there is continuity between written feedback and the discussions that take place in a seminar room. Some research found that students were more concerned about and applied feedback in the process of their writing rather than the end (Ferris, 1995, 2006; Hyland & Hyland, 2006). The findings demonstrate that students are concerned about not only the feedback from their tutorials in the process of their writing but also the final written feedback at the end. Chinese international students are using their second language to write essays, but they hope that lecturers not only point out problems in language use, but also can help them with their thinking and critical thinking. Lecturers believe they are encouraging critical thinking in by specific feedback to develop skills in critical reading, source synthesis and the application of 'theoretical lenses', but students may not appreciate this and see feedback of consisting of more advice to improve their language. Lifelong development of critical thinking skills may be a more difficult concept for students to understand as opposed to correction of specific instances of grammar misuse.

6.8 The influence of power distance in the findings

In the interviews on feedback with participant students, there are answers which show the power distance of Chinese international students. Seven students out of all eleven participant students stated:

> Student Zhao: *If I cannot understand my feedback, firstly I will ask my classmates.*
>
> Student Li: *When I am in contact with my tutor, I need to overcome psychological problems.*
>
> Student Xue: *Firstly, seek help from friends, then try to find help from*

websites. I can only turn to lecturers because I have no way to go.

Student Liu: *If I have things that I do not understand, firstly I will go to the library to look up materials or ask my classmates and friends. Finally, I may choose to ask lecturers because I have a sense of fear of lecturers.*

Student Ju: *If I cannot understand my feedback, I feel that probably I cannot get reasonable explanations from my peers. In my study, I will firstly look at the views from literature and see how other people solve the problem. Firstly, I will not ask my lecturers.*

Student Wu: *Sometimes Chinese students are quiet, and they are afraid of communicating with their tutors because they are scared of making mistakes and losing face.*

Student Tu: *If I don't understand the feedback, I will ask my peers.*

Lecturer Wendy pointed out: "*Students from the middle east, they talk to me in a very respectful way. But they will email me if they need some help. They are more creative in this sense. There may be something specific towards Chinese*". Lecturer Harry also said: "*one of the problems with Chinese students is that they don't wish to return to the lecturer to clarify feedback. So that is dialogic in a very limited way*". Lecturer Keith gave the example of one Chinese international student. He said: "*In fact there was one student who failed her dissertation a few years ago, she was very reluctant to come to tutorials*".

From the interview data, it is found that Chinese international students belong to a group with large power distance to their lecturers, which is consistent with the research of Hofstede (1986). The long-term traditional culture education and examination-oriented education have affected students to form a relatively firm psychological stereotype of being authority- oriented, teacher-oriented and book-oriented, and they may not dare to bravely question the existing problems in their feedback and study. Students' ideas may be in a lazy state. They are not good at communicating with lecturers on their own initiative and are accustomed

to passive acceptance. The fact that Chinese international students belong to large power distance towards lecturers makes it difficult for educators to carry out critical education and teaching activities.

6.9 Chapter summary

This chapter explored factors which contribute to the development of critical thinking from three perspectives, which are teaching pedagogies, feedback and power distance. The following Table 6 was generated from the analysis of the interviews on teaching pedagogies and feedback.

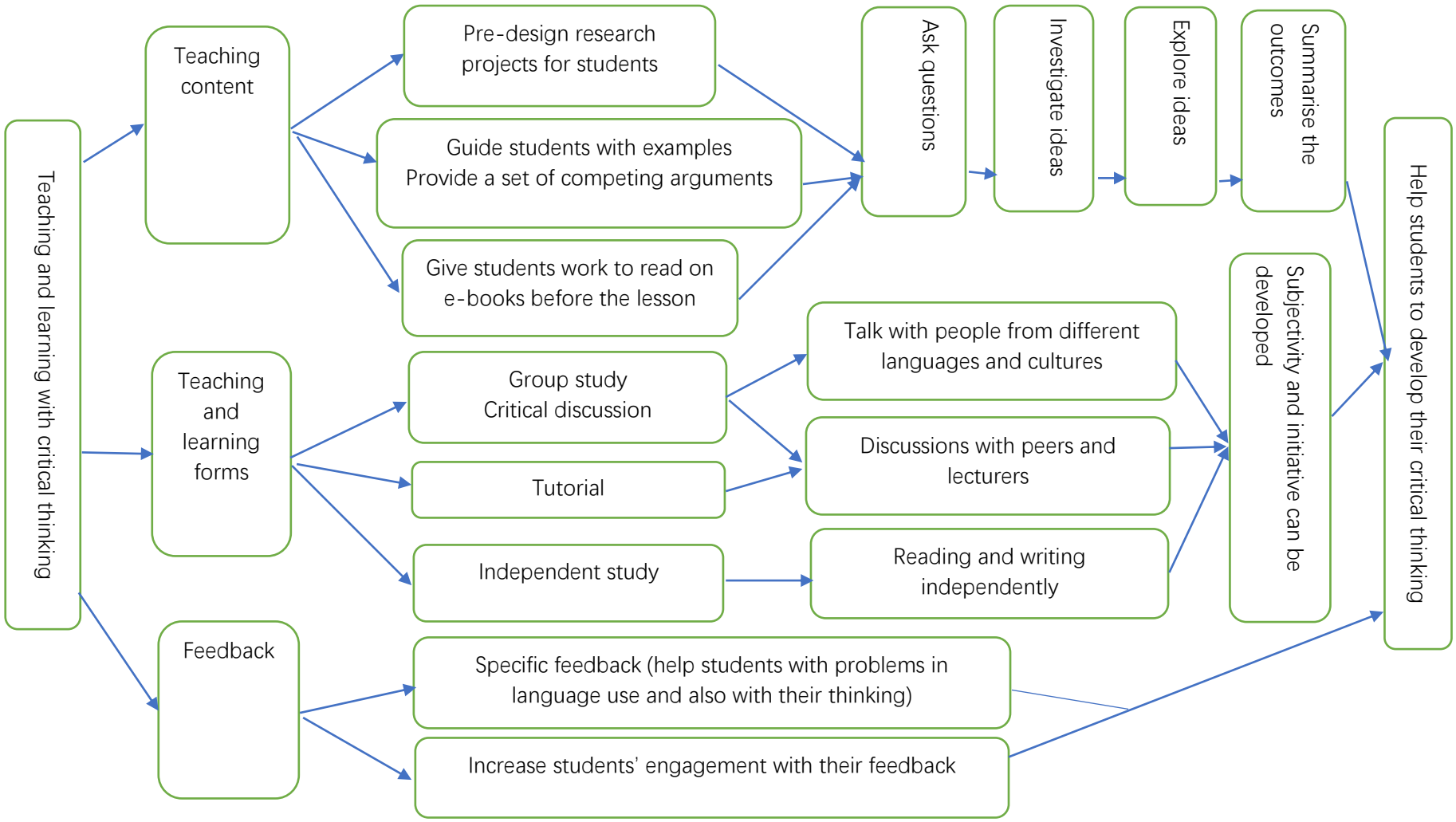


Table 6: Teaching and learning with critical thinking

The content of Table 6 teaching and learning with critical thinking contains: ‘the teaching content’, ‘teaching and learning forms’ and ‘feedback’. The teaching content means that teachers design open-ended questions and exercises beforehand, and provide students with innovative content, time and space, so that students can explore the answers to the questions by themselves. In the teaching and learning forms, teachers and lecturers guide students to participate in group study and group discussions. Students can be combined into groups to discuss and debate. Independent study (reading and writing by themselves) is also necessary in the development of students’ critical thinking. These learning behaviours can fully mobilize the subjectivity and initiative of students. Feedback guides students to understand, think and explore problems from different angles and levels. Specific feedback helps international students with problems in language use and their critical thinking. It is necessary to increase students’ engagement with their feedback using different methods.

Table 6 presents that teaching and learning with critical thinking encourages students to discover and explore actively under the guidance of teachers. It also takes students as the centre of learning and cultivates students’ thinking ability, practical ability and innovative consciousness in order to help students to realise self-development. This teaching and learning mode advocates relieving students’ thinking constraints and letting students play their main role in learning freely.

Chinese international students have large power distance and are reluctant to communicate with their lecturers. These Chinese international students have a relatively firm psychological stereotype of being authority- oriented and teacher-oriented. They are used to taking orders and are given answers from their lecturers. However, the abilities of self-directed and self-regulated learning are strongly required in the Master’s degree course in the UK. Lecturers also believe their pedagogies are located in developing students’ higher order thinking skills by asking questions and provoking thought rather than giving answers. Some Chinese international students find it difficult to fully understand the feedback they acquired from their lecturers. There appear to be differences

between the perspectives of lecturers in what their feedback consists of and how it is intended to be used, and how students interpret and use that feedback. There needs to be a bridge between these two world views to empower students and teachers to connect their understandings of the self in relation to the other to optimise students' learning and to enhance the student overall experience.

Chapter Seven: Findings and discussion from the fourth research question

RQ4: *How do Chinese students describe and understand the development of their critical thinking on the way they might solve a named professional challenge when they return to China?*

China has its own heritage of cultural characteristics in politics, the economy, science, population and the education system which have jointly formed a unique cultural background. Critical thinking is not an inherent, intuitive and obvious mode of thinking, but a product from the integration of certain social, cultural and historical conditions. The modern western critical thinking theory has been developed under the conditions of the western society, and there are a number of obstacles for Chinese students who have not grown up in that environment.

However, this is not to say that the movement of critical thinking is exclusive to the West and that it is incompatible with Chinese culture. It only means that in promoting the movement of critical thinking in China and cultivating critical thinking of its social members, more effort may be required. Chinese international students are introduced, encouraged and required to apply the concept of critical thinking in their learning process in the UK. The question of how these students will apply critical thinking to solve problems in the current Chinese education system after they return to China and work in the area of education is discussed in this chapter.

7.1 Findings from participant students

In the semi-structured interviews with the participant students, in order to explore the fourth research question, the interview question is:

If you become a teacher or a leader in education after you return to China, how will you apply critical thinking skills to solving problems in your education institution/ education system in China?

The findings from the first round of students' interviews were categorised as can be seen in figure 7.1:

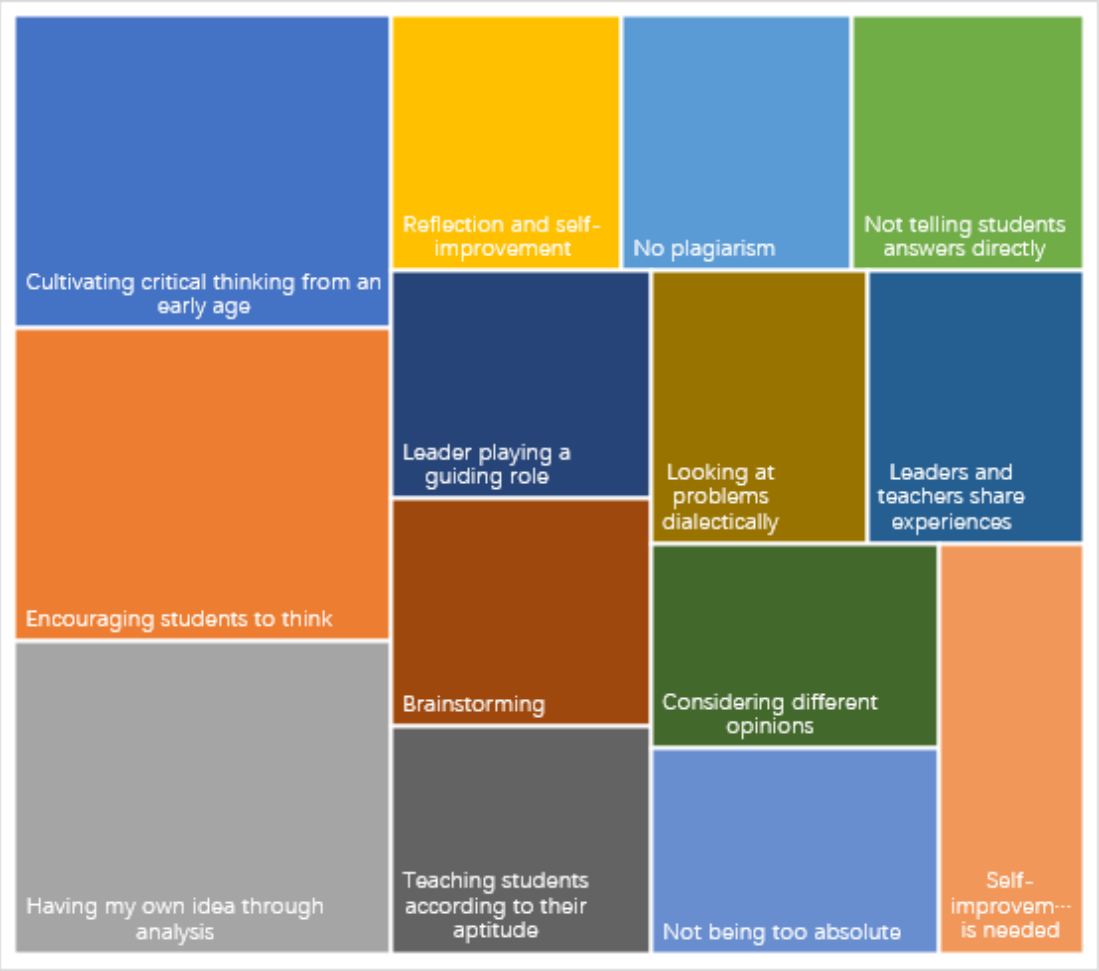


Figure 7.1—Coded categories of the responses of students in the first round of interviews on how students apply critical thinking to solving problems in their education institution / education system in China if they become leaders or teachers in China.

The data is presented in a chart in order to be consistent with the other demonstrations of answers to question. However, there are a greater number of categories of responses to this question than to others.

7.1.1 Cultivating critical thinking from an early age

Figure 7.1 shows us that participant students presented a number of different ideas and perspectives. Two participant students Student Li and Lu presented the idea that cultivating critical thinking should be started from an early age.

> Student Li: *Critical thinking should be cultivated from an early age, and critical thinking and innovation will be added to early childhood education.*
>
> Student Lu: *The training of critical thinking should start from childhood, especially in nurseries and primary schools.*

Under the influence of education and environment, through the process of internalization, adaptation and balance, different development of critical thinking may be formed. Through continuous open training from children to adults, critical thinking can enhance the thinking of students who are eager to learn. Student Li gave the details of what she wants to do as a teacher in pre-school education in answering the interview question.

> Student Li: *In preschool education, I let children express their ideas, give them opportunities to practise including handcrafts. So children from an early age dare to express their thoughts and feelings.*

7.1.2 Leader playing a guiding role

Student Cao said that: *"As a leader, you should play a leading role*". One of the preconditions of cultivating students' critical thinking is to give students the ability so that students can acquire knowledge through their own work, thinking and solving problems. Chinese tradition regards learning as seeking knowledge, which should be imparted by teachers. Learning is for the student to inherit knowledge, accumulate knowledge and store knowledge. When teaching in order to develop critical thinking, on the other hand, teachers should play a leading role, but students should be able to participate in the whole process of teaching. Student Cao also stated that:

> "*We need to teach students according to their aptitude and each person may be good at different aspects. Teachers should not simply evaluate students' performance with their achievements. Teachers should explore different potential with equal vision. We should maximize students' potential. Each student has different talents. Teachers should respect different talents and treat them equally".*

Every student has a distinct personality and infinite potential. The response category of 'Teaching students according to their aptitude' included the view that this will allow each student to develop and use his or her unique wisdom and ability, in one or more aspects. The idea of teaching students according to their aptitude is present in the Analects of Confucius. Confucius gave two different solutions to his two students who asked the same question according to their own characteristics. Teachers should teach children of different ages according to their abilities and characteristics.

7.1.3 New teaching culture

The category of 'Encouraging students to think' is in the words of Student Lu and San.

> Student Lu: *Teachers should allow and encourage students to think.*
>
> Student San: *In my own teaching, students can be encouraged to think because Chinese students are not willing to take the initiative to think in class. Teachers can give students advice to promote student's thinking.*

With regard to teaching culture, students added several other opinions. These are the categories of 'Reflection and self-improvement', 'Not telling students answers directly', 'Brainstorming', 'Looking at problems dialectically', 'Considering different opinions' and 'Not being too absolute', which are in the words of Participant students Zhao, Lu, Cao, Liu, Wu and Tu.

Student Zhao: *When you encounter a problem, you need to have self-reflection. Firstly, think about where you had the problem, then see how other people around you solve the problem, and finally improve your method and try to solve it.*

Student Lu: *Teachers should not tell students answers directly.*

Student Cao: *I use brainstorm to understand each person's different ideas and let problems to be solved in different ways.*

Student Liu: *in other work, we also need to use critical thinking to dialectically look at problems.*

Student Wu: *Listen to all points of view and accept different opinions. I can't just consider my opinions.*

Student Tu: *I want to do educational administration work. Don't be too absolute. There must be a way out.*

From the data above, we can see that a new teaching culture is promoted by the participants students. In this culture, teachers shall not only consciously teach students some facts and skills, but also create a positive learning environment for them to discover and think for themselves, encourage students to question and discuss various views rationally, raise questions and assumptions, and actively explore and test them. Simultaneously, we need to cultivate students' critical thinking affective disposition, so they may become open-minded critical thinkers. In this teaching culture, students are not passive to accept knowledge, but with a critical eye, using thinking skills and experiencing a variety of meaningful self-regulated learning. Teachers should encourage students to ask questions and to develop the habit of doing so. Teachers should encourage students not to completely accept books and authority, they should advocate healthy scepticism, to cultivate students' questioning awareness, to speak out with their own ideas, they should guide students to discover problems through

observation and thinking, and to take the initiative to raise questions and analyse, explore and solve problems. Because of the active participation of students, the process of teachers giving and students accepting has changed into the dynamic process of thinking between teachers and students. In such a dynamic process, students' critical thinking can be developed.

7.1.4 The development of teachers' critical thinking

Several participant students expressed views on their own possible future development if they become a teacher or a leader in education after they return to China. The categories of 'Having my own ideas through analysis' and 'No plagiarism' are in the words of Student Xue.

> Student Xue: *As a student, I used to copy other people's opinions directly in China. Now I am more serious than before. I will quote other people's opinions, but I will analyse them and show my own views.*

The category of 'Leaders and teachers share experiences' is shown in the words of Student Ju.

> Student Ju: *Let teachers have chances to share experiences. Educational workers are not teachers, they have more theoretical knowledge, teachers have more practical knowledge, the two kinds of knowledge should be combined.*

Student Wei stated her opinion in the category of 'Self-improvement is needed'.

> Student Wei: *I want to do educational management work. I need to do self-training and understand the knowledge of critical thinking. I myself need a lot of improvement, including critical thinking.*

Student Wei also argued teachers' influence on students' critical thinking in the second round of interviews.

Student Wei: *It is a very important factor that Chinese students have no rights to say what they want to say in China. Students have no space to use critical thinking. Teachers do not encourage critical thinking, and teachers deprive students of their ability to think. In university, the situation is better. However, students have missed a good time to develop critical thinking. For example, in the debate class, why do we need to make a clear judgement of right or wrong. As a teacher I need to train children's thinking, I will not use the exam score to measure a person's thinking.*

To cultivate students' ability of critical thinking, teachers also need to be critical thinkers. Teachers should have an awareness of several elements. (1) which thinking qualities and cognitive skills constitute the core of critical thinking; (2) how to improve their own critical thinking ability; (3) how to integrate critical thinking training into teaching; (4) how to effectively enhance students' cognitive ability and affective disposition; (5) how to create a learning environment conducive to the development of students' critical thinking ability and (6) how to evaluate students' thinking ability. In these respects, teachers in China are generally not well prepared (Sun, 2011). Students stated that self-improvement is needed as a leader and teacher in education. They also suggested that workshops and discussions can be held to invite relevant leaders and teachers to form a study group to share experiences on teaching strategies and methods of critical thinking ability.

The findings from the second round of students' interviews were categorised as can be seen in the following figure 7.2:

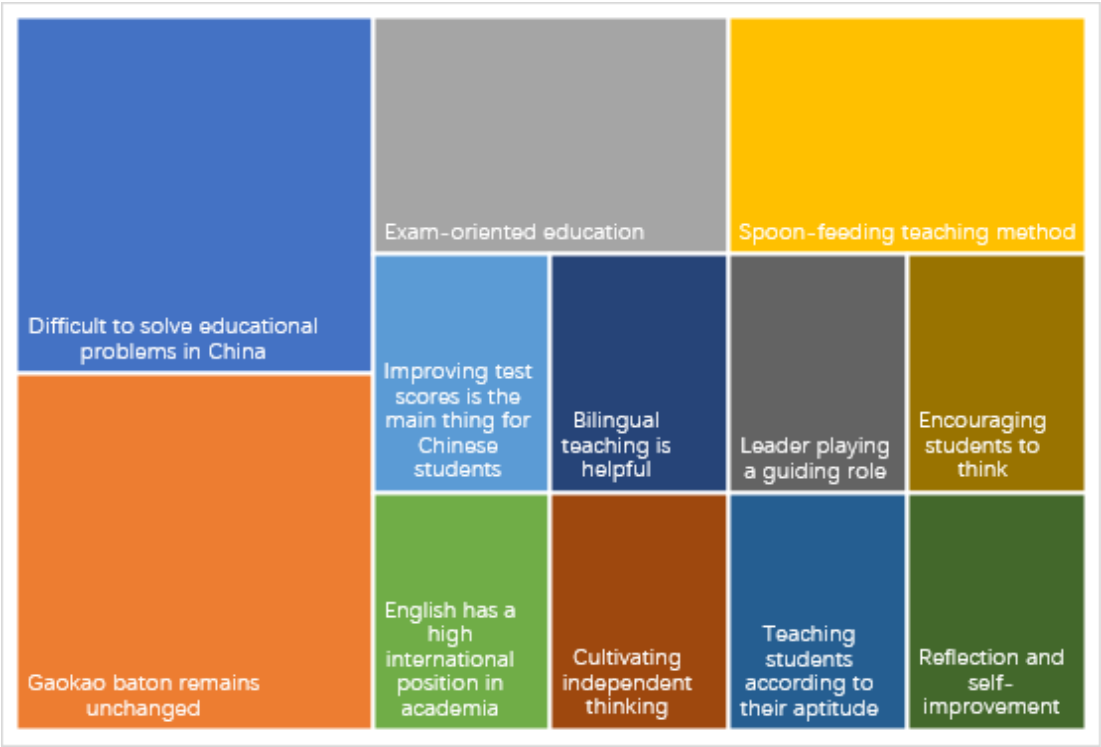


Figure 7.2—Coded categories of the responses of students in the second round of interviews on how students apply critical thinking to solving problems in their education institution/ education system in China if they become leaders or teachers in China.

Comparing figure 7.2 with figure 7.1, participant students self-reflected on the shackles of critical thinking development in Chinese education. Three students pointed out the category that it is 'difficult to solve educational problems in China'.

> Student Ju: *Under the current system, it is difficult to implement new ideas because there are long-established patterns. It's hard to rely on my own strength.*
>
> Student Wu: *It is very difficult for us to solve the existing educational problems by ourselves.*
>
> Student Tu: *Reforms are very difficult to carry out especially in high schools. Six years of high school education have made students have rigid*

thoughts.

Students explained more in details about the disadvantages in the Chinese education system. The sole measurement of academic achievement in the transition between high school and university in China is the ‘Gaokao’ examination - The National College Entrance Examination. The results of students in this examination determine their university place, with higher ranking universities and courses requiring a higher Gaokao grade. Gaokao results for a high school also determine the ranking of that school. The Gaokao grade is referred to as a ‘baton’ in passing between high school and university. The category of ‘Gaokao baton remains unchanged’ is in the words of Student Li, Cao and Liu.

> Student Li: *If Gaokao baton remains unchanged, it will not be possible to implement critical thinking into teaching.*
>
> Student Cao: *Gaokao is the baton. University education is better in cultivating critical thinking, high school education throttles students' critical thinking to some extent.*
>
> Student Liu: *The most important thing in Chinese education system is college entrance examination Gaokao. Students spend a lot of time memorizing facts. This educational system needs reform, and it needs to give students more time to communicate with each other. Now teachers are very busy. They spend a lot of energy on students to memorize knowledge points. We need to introduce some western educational views to enable students to broaden their horizons, to avoid students’ rote memorization, and losing the ability to create. If I can be an education policy maker, I will try to give more class time for student activity. However, this teaching method can only be used in a limited way. If the baton of Gaokao remains unchanged, there are specific tasks in class.*

Student Cao and San also gave similar opinions, which are generalized in the

category of exam-oriented education.

> Student Cao: *Students are used to exam-oriented education.*

> Student San: *Chinese education is mainly exam-oriented education. It has reforms, but it is very difficult to carry out.*

In addition, Student Tu stated her similar opinion in the category of ‘improving test scores is the main thing for Chinese students’.

> Student Tu: *According to the current education system in China, the main thing for students need to do is to improve their test scores.*

Student Liu and Xue criticized the current Chinese teaching method, which can be generalized in the category of “Spoon-feeding teaching method”.

> Student Liu: *I do not agree with Chinese spoon-feeding teaching.*

> Student Xue: *Chinese education is mainly spoon-feeding teaching method, which has disadvantages.*

In talking about one standard answer to a question in exams, Student Xue and Lu stated as follows:

> Student Xue: *The biggest problem of Chinese education is the uniqueness of the answer. There is only one standard answer from books to any question. Some problems do not have the only one answer. As long as the students give reasonable answers, teachers should encourage their students to think.*

> Student Lu: *Chinese exam-oriented education considers that a question only has one standard answer. In Chinese literature exams, even exam text analysis requires unified standard answers. This leads students to*

think less and try to rely on standard answers.

In China, the pressure to enter a good university for every student, their family and their school comes from a clear social goal which is directed by exam-oriented education. This social goal is directly converted to most students' personal goals from when they are a small child to young adulthood. The Chinese primary and secondary education system regards knowledge to be absolute and to be defined whether right or wrong by an authority. This education system expects students to copy information into assignments and test questions. It is generally recognized by teachers and students that most test questions have a standard answer. The greater coincidence there is with the standard answer, the higher marks students will get. Therefore, teachers avoid the diversity of critical thinking and try to give students standard answers directly. In Chinese classrooms, a test-driven approach still exists. Parents and teachers tend to use a spoon-feeding method to encourage students to memorize facts. This can be one of the reasons why Chinese students find it difficult to adopt the learning mode guided by critical thinking after entering western higher education. Because Chinese students may be short of teaching which attaches importance to critical thinking, they tend to consciously ignore objections and different arguments and are satisfied with one-sided interpretation and self-verification. Simultaneously, some teachers in China avoid the training of critical thinking to students so as to prevent students from making mistakes in highly standardized examinations, although these teachers may recognize the importance and necessity of critical thinking. Therefore, the field of thinking of Chinese students is built around established and standardized information. The most important point in these students' thinking fields is to judge the coincidence between the answers they gave and the standard answers.

The categories of 'English has a high international position in academia' and 'Bilingual teaching is helpful' are in the words of Student Lu and Ju.

Student Lu: *Bilingual teaching is a good way. China is a big country, but not a big country in academia. English has a high international position in*

academia. Bilingual teaching can help students with their critical thinking. Now some people in China have suggested that the status of English should be weakened in primary and high schools in China. However, I think that English can be used as a medium of language instruction. Bilingual teaching can start from high schools and English can be used to teach other subjects.

Student Ju: *My English language ability is not strong. Lecturers in my university assessed me in English, which made my assessment results worse than that if I had been assessed in Chinese mandarin.*

In English-speaking Western countries, English language as a monolingual control system holds the primary position in education and teaching evaluation of students. This evaluation undermines native languages of non-English speaking students from other countries. Chinese international students' thinking ability in Western universities is tested by their English language ability. Due to the lack of English proficiency of Chinese international students, they cannot show what they really think. They can only choose to express their opinions within the scope of their language proficiency, or even choose silence because of lack of self-confidence. The limited English proficiency of international students becomes an obstacle to their expression of critical thinking. They often stay quiet in group discussions, which seems as though they are unwilling to participate in critical thinking training, but in fact they may just be nervous about their English proficiency. The inadequacy of English proficiency can cause Chinese international students to resist the exchange of ideas with native English students and teachers to some extent. Chinese international students lack the ability to communicate fluently in English and are afraid of being negatively evaluated by their English-speaking peers or teachers, thus avoiding meaningful interaction with them. This reduces their chances of practicing critical thinking.

From the perspective of monolingual English assessment used in Western universities, language restriction conceals the actual level of students' critical

thinking. Although international students from China have acquired a great deal of academic knowledge in China, such knowledge cannot always be fully expressed and evaluated by assessments in English in the context of a Western social and cultural background. It is difficult for a monolingual English assessment to reveal the real state of thinking of Chinese international students, and the effectiveness of the assessment itself may be weakened. Chinese international students' unfamiliarity with the English language may directly lead to their unsatisfactory assessment results.

It can be argued that the strong economic power of western English-speaking countries has led to the trend that internationalization is actually westernization, and English monolingualism is therefore in a dominant position in the framework of education and teaching. In universities in English-speaking countries, students face assessments that show critical thinking in English as the only output, so students from China have to accept that their ingrained linguistic and cultural strategies have little effect. The assessments from the perspective of English monolingualism ignore the positive aspects of these students' critical thinking and the knowledge they accumulate in their native language. "*English has a high international position in academia"* (Student Lu). Student Lu strongly pointed out the importance of the facts that English has a high international position in academia and Bilingual teaching can start from high schools and English can be used to teach other subjects.

The findings from the third round of students' interviews were categorised as can be seen in the following figure 7.3:

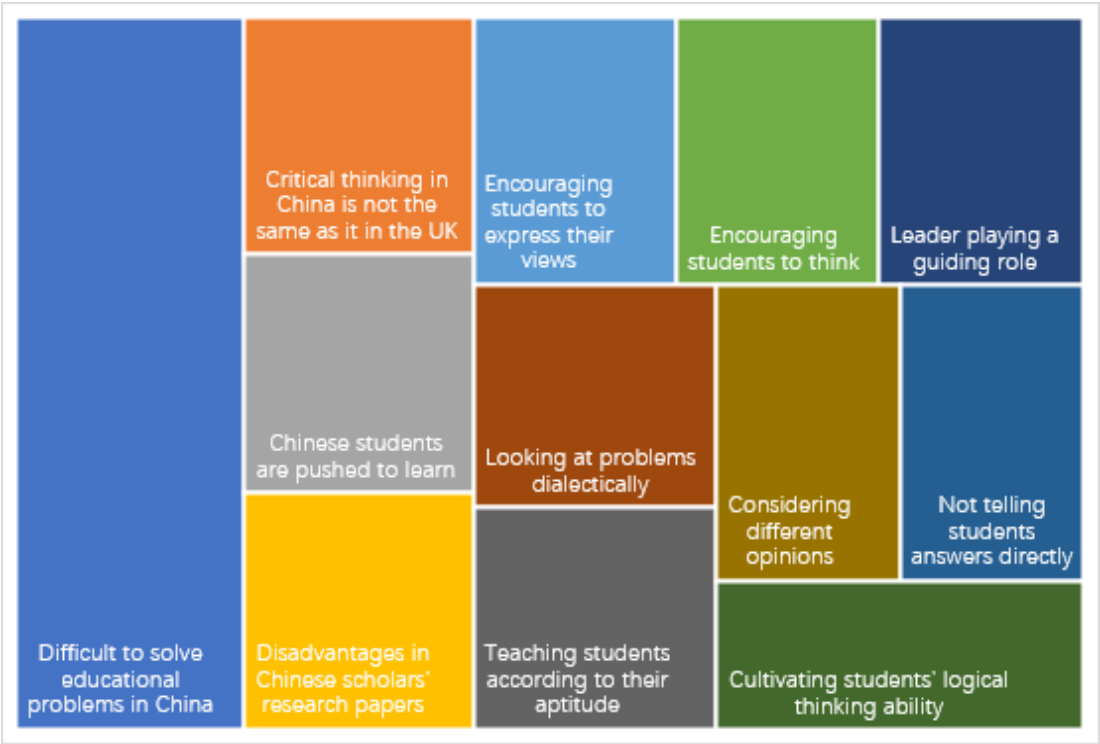


Figure 7.3—Coded categories of the responses of students in the third round of interviews on how students apply critical thinking to solving problems in their education institution/ education system in China if they become leaders or teachers in China.

Comparing figure 7.3 with figure 7.1 and 7.2, a number of categories are still present, however, participant student Xue added a new idea which generated a new category that 'critical thinking in China is not the same as in the UK'.

> Student Xue: *I think that critical thinking in China is not the same as in the UK.*

There is distance between Western English critical thinking and Chinese mandarin critical thinking. In the ideology of teachers and students, the non-Western thinking becomes a resource which lags behind Western thinking. It can be seen that Western academics will separate themselves from non-Western academics when they present the higher position of their critical thinking. It is noteworthy that when Chinese international students define themselves as non-Western, they consciously or unconsciously acquiesce to the

inferiority attached to the word non-Western. These students may have prejudice against themselves, belittle themselves and redouble their enthusiasm for learning new higher Western critical thinking. This further reinforces the distance between the Western and non-Western sides. Under such circumstances, even if they have successfully acquired new knowledge and new thinking patterns in the Western English higher education environment, Chinese international students may find it difficult to use them in China.

Although there are a number of theories related to critical thinking in China, the concept of critical thinking in educational theory and practice have not been significant in the Chinese learning system. Therefore, some western scholars consider that the concept of critical thinking, as one of the sources of modern western philosophical theory, is a special product of the West, and is incompatible with the traditional theories of Asia. They also think that students in the West are considered to have already had the experience of critical thinking and are more likely to succeed in academia. However, critical thinking as it is understood in Western academia cannot be used as a means of comparing different educational cultures. Whether analysing how Chinese students study in Western countries or considering how to introduce critical thinking in Western countries into Chinese education, what is needed is a more equal perspective, merging the critical thinking mode of the West and China, actively utilizing and integrating new and old knowledge to promote critical thinking. Simultaneously, Western educators should also be encouraged to pay more attention to the information resources that Chinese students have acquired in their own academic culture and to combine this with their current Western academic environment, to present a diverse picture of international students' thinking. It could be the case that critical thinking is related to the constant collision and regeneration of knowledge systems.

In addition to this student pointing out that critical thinking in China is not the same as in the UK, other students also pointed out the disadvantages in Chinese scholars' research papers. This can be seen in the words of Student Li and Liu:

Student Li: *English scholars' articles are easy to understand. The author gives you an opinion and will tell you in detail how to do it, and you can use their research method to do your research. It is not clear how to draw a conclusion in Chinese scholars' articles. You may not get a conclusion by using the Chinese author's research method.*

Student Liu: *When Chinese scholars write research papers, data is not sufficient, and the methods are not rigorous enough. The conclusion comes very suddenly. When I return to China, I shall be stricter in life and work.*

University lecturers in China are the main creators of journal articles and academic papers (Luo, 2002). To improve the ranking of universities, competition among universities is becoming more and more fierce. Of the various competitive factors, scientific research strength has become the most critical competitive and important weapon for universities to strive for ranking. To enhance their own scientific research strength, colleges and universities have adopted the means of scientific research performance appraisal to quantify the scientific research work of University lecturers. The main contents of the assessment are the number and level of applications for scientific research and papers published. According to their own principles, colleges and universities classify and define the level of periodicals at home and abroad. They require lecturers to publish as many papers as possible within the prescribed assessment cycle. Teachers in China may publish a paper in several parts for the sake of quantity regardless of quality, attaching importance to scientific research measurement results and neglecting the scientific research process.

7.2 Students' development in their learning process

In the second and third rounds of semi-structured interviews with participant students, students made points in the category that it is 'difficult to solve educational problems in China'. However, despite this difficulty, students showed a good attitude for how they intended to apply their knowledge gained to their

future career in China. This is also reflected in Lecturer Harry's words. "*That is the stance of a teacher that recognises limitations to his or her scope for change* (Lecturer Harry)". This view was supported by comments from Student Zhao, Xue, San, Ju, Wu and they give their own different ideas on how they intend to develop teaching methods for after they become a teacher or a leader in education in China.

> Student Zhao: *The first step in developing critical thinking in my country is to stop memorizing all the textbooks and encourage students to ask questions and express their opinions.*
>
> Student Xue: *I want to be a primary school teacher. I will guide students not to look at things from one perspective*.
>
> Student San: *As for the cultivation of students' thinking ability, I think that I can make small changes and cannot make major changes.*
>
> Student Ju: *If I manage a class, I will give students more management rights, decision-making power. Teachers and students manage the class together.*
> Student Wu: *I will ask students to do preparation, so that they can actively discuss in class.*

7.3 The relationship between critical thinking and creative thinking

In the semi-structured interviews with the participant lecturers, the interview question concerns how critical thinking and writing skills might be applied in students' professional lives, particularly on returning to China.

> Lecturer Harry: *We live in an increasingly globalised world, economically, politically, socially, culturally. In this globalised world, knowledge becomes increasingly more quickly outmoded, no longer relevant. China, like any other nation, and one can say particularly China, given its economic trajectory, its continuously experiencing these dynamic unfolding problem*

spaces. It is engaging with the problem of knowledge becoming quickly outmoded. So it needs creative critical thinkers at the edge of knowledge creation.

This can be related with the idea of Zhang Zai (1020-1077), a master of Neo-Confucianism in the Song Dynasty, he argued that "with scepticism on an argumentation, one should wash away old-fashioned ideas to embrace new ones" (Zhang, Complete writings of Master Zhang). Scepticism is related with creativity. McPeck (1981) believed that critical thinking is closely related to creativity. He believed that knowledge and the creation and production of hypotheses are important parts of critical thinking. McPeck (1981) stated that critical thinking contains creative elements, emphasizing the creative and generative side of critical thinking. What lecturer Harry said in the interview further demonstrates there is a close relationship between critical thinking and the creative critical thinker.

The construction, generation and formation of thinking need to be carried out through negation and criticism of thinking. Without critical thinking, the original thinking will become rigid, stagnant, or even dead. On the contrary, if the original thinking is negated and criticized, the original thinking will have new development. The construction, generation and formation of thinking are accomplished through the analysis, synthesis, judgment, reasoning and generalization of things. The negation and criticism of thinking are based on the old thinking that has been constructed and formed. By analyzing, synthesizing, judging, reasoning, generalizing and abstracting, we can reflect on the existing thinking and form a new thinking structure. Cognitive ability, thinking ability and people's understanding of nature and society are all gradually developed in the continuous creation and criticism of thinking, constant construction and deconstruction, constant generation and negation, constant formation and reflection.

Critical thinking plays an important role in people’s cognition. When critical thinkers encounter problems and need to make decisions, they think rationally

and avoid making decisions without critical thinking. When our actions or thoughts are considered not to be rational, the reason may be that we skip the necessary critical thinking link or because our critical thinking does not function properly. Thinking can be clear and conscious when it is based upon critical thinking and the possibility of making mistakes can be reduced. In fact, every step moving forward in understanding should be reflected, so as to innovate on the basis of criticism. In this sense, critical thinking is a necessary link to creation. When solving problems, creative critical thinkers can think, analyse, reason and judge from many angles, sides, levels and structures, and find answers. They are not limited by existing knowledge, nor bound by traditional methods. The thinking is connected with creative activities and embodies new ideas.

7.4 Chapter summary

Critical thinking is present in Chinese traditional culture, which can be found from the learning theories of Confucius, Mencius and Xun Zi to theorists such as Zhang Zai and Zhu Xi. There are some elements of critical thinking in Chinese traditional culture, but critical thinking has not become the mainstream in Chinese thinking. The Chinese language and mainstream culture cause people to form a Chinese way of thinking. It is not easy to implement critical thinking in Chinese education. The current Chinese education system has a number of obstacles in the promotion of critical thinking. These obstacles are not only related to teaching methods, but also related to ideology.

To promote critical thinking in China, an important change would be to adjust the teaching goal of Gaokao (the National college entrance examination). Education should not be exam-oriented and should be student-oriented. Secondly new teaching methods and more discussion should be adopted in the classroom. Thirdly enriching teachers' critical thinking knowledge and improving their assessment methods are also needed.

English language as a monolingual control system has the primary position in education and teaching evaluation of students. Their restricted English language places Chinese international students and scholars at a disadvantage. Simply

dividing the concept and language of critical thinking is contrary to the original meaning and purpose of critical thinking between the West and China. This division is counterproductive to the individual ability of the students themselves, or to the promotion of the Chinese and Western knowledge systems. However, the fundamental importance of critical thinking, especially the requirement of critical thinking in international education, should not be negatively affected by the differences between thinking patterns, theoretical knowledge and language habits. The relevant connections between thinking patterns, theoretical knowledge and language habits should be actively sought. Through a reasonable and innovative connection, new and more situational thinking knowledge can be created.

Chapter Eight: The development of participants' critical thinking

A conceptual schema of influencing factors on the development of Chinese students' critical thinking ability was proposed in Chapter two. Participant students can be categorised into three critical thinking development groups. These three groups of students are distinguished by the differences and similarities in their learning, critical dispositions and their achievements. These are as follows:

- students who made continuous and significant progress
- students who made some progress
- students who made little progress.

This chapter will present and discuss the findings on the students in each of these categories. A major factor that affected all participant students is how well they can adapt themselves to academic life in the UK, which will be discussed in section 8.4.

8.1 Students who made continuous and significant progress

Students Cao, San, Wu and Li made continuous and significant progress in their learning journey. This section explores five factors identified in the semi-structured interviews as contributing to the development of their critical thinking.

8.1.1 The role of mastery goals and performance goals

Motivation is related to how students think about themselves, their tasks, and their performance. "An individual can be said to have mastery goals or performance goals, based on whether one's goal is to develop one's ability or to demonstrate one's ability, respectively" (Shatz, 2015). Learners who pursue the ability to have continuous development tend to set up a mastery goal, and learners who expect to show their ability to others are more likely to pursue performance goals. More specifically, the mastery goal refers to the goal of

improving ability, mastering and understanding knowledge. The performance goal pays more attention to show the learner's abilities and surpass other peers using the comparative norms of social routines (Pintrich, 2003).

Mastery goals and performance goals have different effects on learning achievement. Compared to the performance goals that are more likely to cause stress and anxiety, the mastery goals are not confined to the social standards that compare themselves with others, and can more actively and effectively motivate learning interest and intrinsic motivation, which can contribute to better learning results. These two goals may interlace or act on learners at the same time and produce resultant effects (Barron and Harackiewicz, 2001). Four modes of interaction between the mastery goal and the performance goal are put forward (Barron and Harackiewicz, 2001), which are as follows: (1) Additive goal effects: two goals have independent and positive effects on learning outcomes. (2) Specialized goal patterns: two goals have positive effects on different learning outcomes, such as the mastery goal is more related to learners' interest and internal motivation. The performance goal is more related to results and scores. (3) Interactive goal effect: learners who have both a high mastery goal and performance goal have more advantages than those learners who have a high mastery goal and low performance goal. (4) Selective goal effect: learners actively choose their goals according to the situation. For example: mastery goals may be more prominent in group work, whilst performance goals are more important in competitive surroundings.

Data in the semi-structured interviews shows that the mastery and performance goals of student Cao, San, Wu and Li were at a high level. All participant students had high performance goals in learning, which were mainly related to gaining a Master's degree and the fact that the Master's degree may contribute to a good job after they return to China. However, Student Cao stated that "*This course can motivate my thinking*". Student Cao shows that she not only wants to acquire a Master's degree, but also she has a higher pursuit in mind.

"I am not satisfied with my undergraduate study. I want to have a higher

level of my academic learning. The second is that I am interested in education field because I am interested in how to influence people in positive way. This course can motivate my thinking" (Student Cao).

Student San hoped to engage in further study whilst acquiring a Master's degree. "*I want to start doctoral study after I complete my Master's course and I intend to take the academic road"* (Student San). Student San had a strong motivation for learning. After she had finished undergraduate study, she already had a good job working in an office in her hometown in China. She treated the Master's degree course as a chance to challenge herself. She stated that "*I like challenging myself and I really enjoyed my learning experience in the UK"* (Student San). This goal of challenging herself and enjoying learning had also been a driving force for her continuous efforts.

Student Wu and Li pointed out that their motivation to study in the UK was not only to acquire a Master's degree, but also includes learning through education outside China, increasing English language ability and experiencing western culture and academic atmosphere. Student Wu and Li said:

> Student Wu: *I want to know more education outside China. I also want to improve my English language ability.*
>
> Student Li: *I not only want to have a Master's degree, but also I want to experience western culture and academic atmosphere.*

8.1.2 Positive situational awareness

The learning process takes place in real life situations and various situational factors provide material or social support for self-regulated learning (Zhao & Liu, 2012). Learners' conscious and emotional responses to specific situations play an important role in their learning process. In the university learning environment, a large part of learning takes place outside lectures, and learners have autonomy to construct a learning environment which includes how to use existing resources, eliminate environmental interference and how to cooperate

with peers (Pintrich, 2004). Positive situational awareness helps learners to use environmental resources to serve their learning targets.

The same learning environment stimulates different social situational awareness among different learners. The same learning environment also promotes or inhibits the development of critical thinking in the process of learning. The combination of social situational awareness and goals can affect learners' ways to use resources. For students who have mastery goals and positive situational awareness, they are more likely to help each other and make progress together.

Four participant students Student Li, Cao, San and Wu gave their opinions on active interaction with peers and lecturers

> Student Li: *I can contact people from different nationalities, ages and experiences and acquire information, which can contribute to the development of critical thinking.*
>
> Student Cao: *Between me and lecturers, there needs to be more discussion, more communication.*
>
> Student San: *The process of mutual exchange of views between students and lecturers can contribute to the development of critical thinking.*
>
> Student Wu: *Talking with different people is helpful. I can feel different cultures and thoughts*.

Student Li and Wu pointed out that contact with different people can contribute to the development of critical thinking. Student San stated that active communication with peers and lecturers is helpful and Student Cao wanted to have more discussion with her peers and lecturers.

8.1.3 The ability to reflect upon themselves

The process of critical thinking includes metacognition and self-regulation, which

means that thinkers need to use critical thinking to monitor, adjust and amend their own thinking in the process. Learners who have self-regulation usually review their learning process after the completion of one learning task and summarize the successful experience to provide reference for the next task. Zimmerman (2002) pointed out that self-reflection includes self-judgment and self-reaction. Self-judgment refers to the evaluation of the performance of one's own task and its causal attribution. Self-reaction refers to whether learners have metacognition and form adaptive or defensive responses for their future learning.

Students Cao, San, Li and Wu showed reflection ability in their learning process. Their own analysis and evaluation showed evidence of focusing on thinking ability, especially Student Li and Wu. In the second round of interviews with Student Wu, she told me that she failed one course. She complained that the feedback from markers was not helpful. *"My feedback from markers is mainly about the structure, grammar and expression of my essay, but it does not give me any help in thinking and critical thinking"* (Student Wu). In the third round of interviews with her, she demonstrated that she was good at self-judgment and self-reaction. *"I used to think that my feedback from markers was useless, and I got more help from my pre-sessional course than the main course. I began to think carefully and reflect myself after I failed one course earlier"* (Student Wu). On answering the question of how she demonstrated critical thinking skills in her work samples, the response of her second round of interviews was different from the response of the third round of interviews. The responses were as follows:

> *"Take a look at two sides of the thing and use evaluation. In my writing, I need to write advantages and disadvantages. Critical thinking is not important in my writing"* (Student Wu in the second round of interviews).
>
> *"The topic of my final dissertation is the influence of new education technology on school leadership. Critical thinking is shown in the interviews. I interviewed 10 teachers. Seven teachers think that critical thinking is helpful. I extended the number of interviewees and wanted to*

seek different opinions. Some teachers think that ICT will hinder teaching. In my writing, I did not unilaterally say that ICT is good or bad. I said from both aspects. Because I have been exposed to ICT before, I add my own experience to the writing. I can have different opinions - as many as possible through my own research method and combine my own experience in the research. I don't just list ideas. I give my own opinions" (Student Wu in the third round of interviews).

In the second round of interviews, Student Wu stated that critical thinking is not important in her writing and what she needs to focus on is to look at advantages and disadvantages. In the third round of interviews, she pointed out that critical thinking is even used in her interviews and she explores different opinions which are not just advantages and disadvantages. Her research involved interviews with teachers as participants. After she realised that the majority of her participant teachers in her research had similar ideas, she adjusted her research within the rationality of her qualitative research method and increased the number of participant teachers. She also combined her own real experience in her research and gave opinions without merely listing ideas. Student Wu made distinct progress in the critical learning process, through self-reflection and acting upon that reflection especially after she failed one course in the middle of her learning journey.

Student Li self-reflected her learning strategy in the third round of interviews. She said: "*I used to be pushed by teachers and parents in learning and my learning initiative was not good enough. My self-control and self-management were not particularly strong. In the UK, under the mode of advocating self-regulated learning, I changed my learning strategy used in China"* (Student Li). Student Li paid attention to lecturers' feedback and used it to self-regulate her writing. She pointed out: *"Lecturers point out the places that I can improve in detail in feedback. I will refer to the feedback and pay attention to my weak parts whilst I am writing" (*Student Li in the third round of interviews).

Student San self-reflected in the third round of interviews in the response to the

question of how she demonstrated critical thinking in the final dissertation. "*Critical thinking is needed in my final dissertation. You asked me this question in the first and second rounds of interviews. I did not have deep understanding on critical thinking. My answer was that you need to have all-round considerations, which include good and bad aspects. Now I think about how to find relevant arguments to support my ideas"* (Student San). Student San identified problems in the previous stages accurately and put forward solutions.

Student Cao came from Beijing, the capital of China. Her parents she reported are open-minded and created a free environment for her. Apart from safety considerations, she has had few restrictions from childhood. She had a good gymnastic training when she was a child. She self-reflected in the second round interviews. "*It is difficult to find problems by myself and there are limitations in my thinking. The feedback that markers gave to me pointed out my advantages and disadvantages"* (Student Cao).

8.1.4 The progressive improvement of the cognitive level of the students

The main ideas that Student Cao used to give the definition of critical thinking in the first and second rounds of interviews are concerned with the need to look at things from multi-angles and multi-perspectives. Apart from this opinion, Student Cao added more ideas in the third round of interviews. "*Make a judgement. Make a logic judgement. Compare different ideas. Create new angles"* (Student Cao).

Student Cao has made significant progress in the ability to express her ideas in English. In the first round of interviews she directly used Chinese to express herself. In the second round of interviews she preferred to use Chinese because she is afraid that she cannot explain her opinions clearly in English and she thought she was better in explaining herself in Chinese. In the third round of interviews, she chose to interview in English and was confident to talk. Student Cao was the only participant student to choose English to have an interview.

On the responses to the interview question of how she demonstrates critical

thinking skills in her work samples, Student Li stated her opinion in the first round of interviews. "*In the in-sessional lessons, I have the writing sample that teachers gave. According to the sample I wrote a topic sentence, then I gave reasons, analyse and construct a paragraph"* (Student Li). In the third round of interviews, Student Li said that "*Through reading the literature, I will form the structure of the dissertation. It is about reading other people's theories and form my own opinions"* (Student Li). Comparing these two replies, the first response shows that Student Li had influence from writing samples. As the process of generation and output of written English, writing is not only a process of displaying comprehensive language skills, but also a complex process of thinking and cognition (Gu and Liu, 2006). The application of template writing is essentially a simplification of the complicated process of writing, which differs from the essential requirements of advanced level writing skill acquisition. In terms of cognitive psychology, the application of a writing sample is believed to lead to the inhibition of learners' thinking, cognition and language ability (Wen and Zhou, 2006). However, in the third round of interviews, Student Li did not reply to the question on the use of a writing sample or template and formed the structure of her writing through reading the literature. Student Li herself also realised that she made some progress in writing. She stated "*Doing some reading, group discussions, contacting with people from different countries all contribute to the development of critical thinking. I mainly piecing materials together in my writing at the first stage, and now my writing is more logical"*.

In the third round of interviews, Student San described her understanding of critical thinking. *"I think that critical thinking is a long process. I did not really understand the meaning of critical thinking in my first two interviews and the concept of critical thinking is difficult to understand"* (Student San). This shows that she realised that she had difficulty in understanding the concept of critical thinking in the earlier stages of learning and has made progress subsequently in understanding this concept later.

8.1.5 The improvement of affective dispositions and emotional qualities of critical thinking

Dewey (1910) emphasizes the significance of curiosity in his perspective on reflective thinking. Inquisitiveness with regard to a wide range of issues is regarded as a very important affective disposition (Facione, 1990). Curiosity enables learners to pursue a deeper understanding of things and more reasonable judgement.

Student Cao pointed out that lecturers' guidance can contribute to her development of critical thinking skills. She said: *"Lecturers can give students guidance. Between me and lecturers need more discussion, more communication. If I send the email, maybe the lecturer can't answer me immediately. In the tutorial, questions can be solved quickly. I think that I need more tutorials"* (Student Cao in the third round of interviews). Possibly there had been some misunderstandings in the exchange of emails between the student and lecturer. However, the answer from Student Cao shows that she had a desire to learn and wanted to know more professional content.

In his interview, lecturer Keith mentioned that Chinese international students sometimes are not open-minded towards dispute and they do not like to have discussions with their lecturers. Student Li said that *"When I am in contact with my tutor, I need to overcome psychological problems. In the preparation stage of the final dissertation, I will communicate with my tutor*" (Student Li in her final interview). Although she found it difficult to have discussions with her lecturers psychologically, she tried to overcome the difficulty and to be open-minded towards dispute.

On answering the question of the definition of critical thinking in the third round of interviews, Student San replied: *"Lecturers gave me some views. However, I need to have my own views. I need evidence to prove my views, not relying on my own experience and subjective views".* People who have a strong sense of critical thinking can avoid both self-deception and blind faith. Strong sense of

critical thinking does not require the abandonment of existing beliefs but may require evidence for continued adherence to such beliefs (Paul and Elder, 2001). This reply shows that Student San was not completely obeying the authority and was fair-minded in appraising and had a strong sense of critical thinking.

From the data, Students Cao, San, Li and Wu are not at the same level of critical thinking. The level of Student Wu is lower than the other three students. However, they all have strong and positive mastery goals and performance goals. They have good understanding of metacognition and all of them have made continuous and significant progress in their learning journey.

8.2 Students who have made some progress in their learning journey

Student Zhao, Liu, Lu, Xue, Tu and Wei six students were successful in finishing their Master's degree study, but they had some problems in their learning and the development of critical thinking. This may be due to the following factors identified and discussed in the following section. Firstly, these students focus on performance goals rather than mastery goals. Secondly, the cognitive level of the students has improved, but to a lesser extent than the first group. Thirdly, the affective dispositions and emotional qualities of critical thinking have improved but also to a lesser extent than the first group.

8.2.1 Students focus on performance goals

From the perspective of motivation, these six learners valued performance goals.

> Student Zhao: *I want to get a Master's degree. I do not want to do any doctoral study.*
>
> Student Xue: *High academic qualifications may enable me to find a good job. I want to have a Master's degree to help me find a job. I have no idea of doing doctoral study.*
>
> Student Tu: *I want to get a Master's degree, which makes it easier for me*

to find a job in China.

Student Wei: *I want to have a Master's degree and go back to China to work.*

Student Xue explained two reasons which are as follows: "*I do not want to rely on my parents any more. In addition, women with high academic qualifications do not have an advantage in finding a partner in marriage"*.

The motivation of focusing on performance goals drove these students to regard acquiring a Master's degree as a way to find a good job.

8.2.2 The cognitive level of the students has improved to some extent

In the answers to the second research question which was how you demonstrate critical thinking skills in your work samples, Student Zhao answered as follows:

"In academic writing, if I refer to other people's opinions, I need to think about whether I support or oppose their opinions. I also need to show my own views after the reference" (in the first round of interviews).
"In working sample, firstly we must clearly point out whether we agree or deny the views of others, and then write down my own views. I may also take others' points of view to support my arguments" (in the second round of interviews).

"Firstly, I need to agree or disagree the opinions from other people. Then I need to express my own ideas and add other people's ideas. Or I need to see whether other people's ideas support my ideas" (in the third round of interviews).

Comparing the answer in the first round of interviews with the answer in the second round of interviews, Student Zhao just put one extra opinion which was to use others' points of view to support her arguments. In addition, she gave similar opinions in the third round of interviews, which shows that Student Zhao had improved to some extent, but did not show dramatic improvement in

answering this question.

In answering this research question: If you become a teacher or a leader in education after you return to China, how will you cultivate students' critical thinking skills? Student Zhao answered: "*I haven't thought about being a teacher. I haven't thought about how to cultivate students' critical thinking if I am a teacher in one university*". This was the response in the third round of interviews which was near the end of her Master's degree study. From the perspective of transferability of critical thinking, this response reflects that Student Zhao was short of the thinking to apply what she had learned in the Master's degree course to her future career.

In the answers to the first research question which was about the definition of critical thinking, Student Tu answered as follows: "*We need to look at things from two perspectives, which are good and bad perspectives"* (in the first round of interviews). "*Critical thinking is about looking at things in different ways and from different perspectives"* (in the second round of interviews). *"We can see different aspects of things, good aspects and bad aspects"* (in the third round of interviews). Comparing the three answers, Student Tu gave similar ideas in each round of interview and she did not think deeply about this research problem.

On answering the same question which was about the definition of critical thinking, Student Liu answered as follows:

> *"Critical thinking in reading essays or in facing other people's ideas means having your own ideas"* (in the first round of interviews).
>
> *"I have my own opinion on things. I won't blindly follow. I will take a critical attitude to look at problems and make a judgment based on what I acquire"* (in the second round of interviews).
>
> *"I have my own opinions when I look at things and read some literature. My undergraduate course is not the same course as my Master's degree. So I*

do not have deep understanding in the course in education. So I mainly take the knowledge the lecturers taught me. After I knew the knowledge, I consulted relevant materials and accumulated some theoretical knowledge, and then I form my own opinions and deepen my understanding of the knowledge" (in the third round of interviews).

Comparing the answers in the three rounds of interviews, Student Liu expressed similar opinions which were about having her own ideas on things. Even in the third round of interviews, Student Liu just added reasons to explain why she has her own opinions. However, Student Liu gave a more complete answer in the answers to the second research question which was how you demonstrate critical thinking skills in your work samples. She answered: *"Critical thinking can be described in writing literature review. In literature review, I saw other people's opinions and found arguments to support this opinion"* (in the second round of interviews). In the third round of interviews, she answered: "*We need to choose the areas that we are interested, to read some literature, to form the theme that I want to study. We reference research methods from other people's research. I also reference and adopt the related research achievements in the field I explore. I need to use critical thinking in the data analysis because we can't just borrow ideas from other people's research. I have to have my own opinions. In data analysis, we need to implement critical thinking"* (in the third round of interviews). Comparing these two answers, Student Liu realised that critical thinking can not only be described in the literature review, but also can be implemented in data analysis. Student Liu made some improvement in critical thinking through the whole process of studying a Master's degree.

Student Wei came from the capital city Beijing in China. She planned to start a career in education management in Xinjiang province, which is in the west of China. She was interested in the education in Xinjiang Uyghur Autonomous Region and carried out an investigation on outdoor education in Xinjiang in a primary school from the perspectives of students and parents. She could relate what she was learning with what she plans to do as a career. In answering the fourth research question: If you become a teacher or a leader in education after

you return to China, how will you apply critical thinking skills to solving problems in your education institution / education system in China? Student Wei gave answers as follows: "*I have not thought about this question. I know that there are problems in Chinese education, but I have not thought about how to use critical thinking to solve these problems"* (in the second round of interviews). "*Cultivating students' logical thinking ability"* (in the third round of interviews). Comparing the two answers, Student Wang made some progress in applying critical thinking in her future career. However, she did not give a clear explanation on answering this question and considered logical thinking ability to be critical thinking.

Student Lu has made some progress in demonstrating critical thinking in her work samples. She answered: "*If there are three paragraphs in one essay and the results are more positive, two paragraphs are positive, and one paragraph is negative"* (in the first round of interviews). In academic writing, it may be too stereotyped to arrange the paragraphs simply by the number of positive and negative paragraphs. She gave a less stereotyped answer in her third round of interviews, which was "*I am writing blended learning now. I am advocating this kind of teaching method, but I ask questions and challenges of this method when I am designing the questionnaire. At the end of my writing, there will be a part of writing which is the challenge of the future of the blended learning, what problems will be encountered, and some solutions will be listed"* (Student Lu). The marker of her writing assignment stated her progress on the marksheet: "*Your assignment demonstrates your developing capacity for analysis of literature and critical reflection on this" (and on policy/practice)*. In addition, Student Lu made some progress in language ability. She pointed out her weakness in the second round of interviews. "*Sometimes I cannot understand reading articles because of my poor language skill*". The marker of her writing stated her progress in language. "*Your written English is generally good (and improved on earlier submissions), but there are still occasional language issues that you need to address; in the main, this comes where you use overly long and complex sentences, which sometimes make your meaning unclear"* (Marker). The markers of Student Lu's work assignments gave specific, targeted and

formative feedback. However, Student Lu had experienced some misunderstanding of the feedback she received. "*My feedback is summative. I feel that my markers are a bit lazy. I feel that markers have a sample and they just changed a little by using the sample. My feedback is not specific"* (in the third round of interviews).

Student Xue expressed her progress in academic writing in the Master's degree course. *"When I took IELTS, my score in writing was very low and I had the need to learn English academic writing. My earlier writing was very absolute, which is just positive and negative. My writing now is not so absolute and it can be better analysed"* (Student Xue in the third round of interviews). Student Xue gave a similar response as Student Lu on the feedback she got from markers. "*My feedback is too simple and I cannot understand where my problem is".*

8.2.3 Improvements in affective dispositions and the emotional qualities of critical thinking

Critical thinkers should have certain affective dispositions and emotional qualities such as passion for exploring the unknown, vigilance of their own prejudices, and an open attitude towards dispute. Lecturer Keith mentioned that Chinese international students sometimes are not open or willing to engage in dispute and they do not like having discussions with their lecturers. Student Zhao, Xue and Liu did not like having discussions with their lecturers. "*My feedback points out that I have a lot of problems with the usage of language. If I cannot understand my feedback, firstly I will ask my classmates. Now I am on the stage of final dissertation. I will only ask the lecturers when I do not have common topics with my classmates"* (Student Zhao in the third round of interviews). Student Zhao expressed her preference to talk with her classmates and the reason she chose to talk to lecturers was that she may find it difficult to find help from her classmates. "*If I have difficulty in understanding the feedback, I think that many Chinese international students will surely turn to their friends firstly because of their poor language ability. I am one of them. Firstly, seek help from friends, then try to find help from websites. I can only turn to lecturers because I have no way to go"* (Student Xue in the third round of interviews).

Student Xue had similar attitudes with Student Zhao and trying to get help from lecturers is the last thing they will choose. "*If I have things that I do not understand, firstly I will go to the library to look up materials or ask my classmates and friends. Finally I may choose to ask lecturers because I have a sense of fear of lecturers"* (Student Liu in the third round of interviews). Student Liu expressed that she has strong power distance towards her lecturers.

Student Tu did not have good understanding of the moral characteristics of critical thinking. "*If my tutor asked me to use some ideas, I will try to follow my tutor's ideas. Critical thinking equals to problem-solving"* (Student Tu in the second round of interviews). The moral characteristic of critical thinking is that the purpose of critical thinking is not for the benefit of a particular number of people or individuals (Paul, 1982). Student Tu stated that she would like to follow what the authority said without moral consideration. Student Tu had not developed regular habits of reflective thinking, for example in relation to her attitude and responses to feedback on assignment, which were not consistent as exemplified by the following statement which implies that she had a rather defensive strategy (Zimmerman, 2002) towards much of the feedback offered to her: "*If my writing assignment has passed, I will not read my feedback carefully. If my writing assignment has failed, I will study my feedback"* (Student Tu in the third round of interviews). If she has passed the assignment, she may miss useful things from her feedback which may contribute to her next stage of learning. The purpose of formative feedback is not just confined to failed assignments.

Reflective thinking is one important part of critical thinking. Reflection after finishing one stage of learning tasks can enable learners to learn through experience and make adjustments to subsequent learning tasks. Learners who cannot accurately assess the problems in the completed tasks may find it difficult to make adjustment in a follow-up study. Zimmerman (2002) stated that there are two kinds of self-reactions, which are adaptive responses and defensive responses. Adaptive responses are the adjustments made to improve learning methods and effects. Defensive responses are the avoidance and abandonment

of some learning tasks or learning strategies in order to protect and maintain their image (Zimmerman, 2002). From the answers from Students Zhao, Xue, Liu and Tu, they are more likely to use defensive strategies in their Master's learning journey.

8.3 Students who had made little progress in the learning journey

Student Ju made little progress in his learning journey. The responses in the interviews with him showed a number of factors which may contribute to this.

The cognitive level of Student Ju had not improved. "*I don't have a lot of experience in English writing. I have some difficulties in understanding my tutors. I can partly accept my tutors' view"* (in the first round of interviews). Before the second round of interviews, Student Ju had failed one course. So he said: *"I have only studied Master's course for a short time and have not achieved the requirement"* (in the second round of interviews). On answering whether he can understand the feedback, he responded: "*Sometimes it is difficult. I feel that the feedback is useful, but I do not have the ability to fully understand it"* (in the third round of interviews). On answering what teaching pedagogies contribute to his development of critical thinking skills, he mentioned: "*The tutor started with complicated materials and my ability to accept these materials is not strong. The tutors taught me theoretical knowledge which I could not understand easily"* (in the third round of interviews). Comparing the answers from three rounds of interviews, Student Ju has felt difficulty in understanding the tutors' views, the feedback and teaching materials from the early stage to the end of his learning journey. He was inclined to use defensive strategy whilst he was facing these challenges. He pointed out several reasons. "*My undergraduate course is Chinese literature, so I only know little about education"* (in the first round of interviews). "*Talking about feedback, the tutors only gave me the framework, without specific guidance. The tutors' feedback is not specific enough"*. This answer was given in the second round of interviews. Student Ju failed one course and he could not understand the feedback he was given. In the third round of interviews, he complained that the teaching materials lecturers used were too complicated and theoretical. His final dissertation was about teachers'

perceptions of the effectiveness of student motivation. The marker gave an opinion on his use of references: "*Several reference sources are now rather dated, i.e. from the 60s, 70s and 80s*." The time I interviewed with him and discussed this. His answer was "*I cannot find reference sources which are after 90s in the library"*. After asking whether he is sure that there was no reference to the teachers' perceptions of the effectiveness of student motivation, he admitted that actually he did not know how to find sources in the library. The marker of his dissertation gave him specific feedback about how to use references. *"Use et.al. for three or more authors within the main text and omit all authors' initials".* This shows that Student Ju did not spend time in learning how to use the Author-Date (Harvard) Referencing which students can find on their university website. Student Ju may have had problems in adjusting to the learning system in the UK. His attitude was different from Student Li. Student Li had made continuous and prominent progress in her learning journey and she said: "*I used to be pushed by teachers and parents in learning and my learning initiative was not good enough. My self-control and self-management was not particularly strong. In the UK, under the mode of advocating self-regulated learning, I changed my learning strategy from that I used in China".*

Student Ju was not open to or willing to engage in dispute and he did not like having discussions with either his lecturers or his peers. "*If I cannot understand my feedback, I feel that probably I cannot get reasonable explanations from my peers. In my study, I will firstly look at the views from literature and see how other people solve the problem. Firstly I will not ask my lecturers.*"

In addition to his poor achievement on his course and his lack of demonstrating progress in critical thinking, student Ju had made little progress in language ability. Although he had passed the language test in his pre-sessional course and had the chance to study his main course, his weak language ability devalued his writing assignments including the final dissertation. The marker of his final dissertation remarked: "*The use of language, however, has inhibited some of the clarity of meaning throughout the work. This has detracted from the presented arguments and discussion and somewhat devalued their focus and*

quality." *"Avoid using non-sentences – there are many within the assignment."*

8.4 Adaptation of Chinese postgraduate students to academic life in the UK

Sobkowiak (2016, p.697) stressed the importance of intercultural competence for effective communication between cultures and that this is strongly related to critical thinking. Critical thinkers should not exclude themselves from the surroundings in which they live. Li and Hou (2018) pointed out that international University students' adaptation is strongly related to psychological health. They also argue that the psychological health of university students is positively correlated to critical thinking ability (Li and Hou, 2018). This following section discusses cross-cultural integration because my research participants are international students and positive integration with local people and culture can contribute to their development of critical thinking.

8.4.1. Motivation and reasons for studying abroad

Chirkov et al. (2007) state that entering and living in a different country is a very important change in life. Studying abroad means changes for Chinese international students. They begin to live in different cultures, lifestyles and social networks and face separation from their familiar hometown, family and friends. However, most of the contemporary Chinese international students were born under China's one-child policy which was formally implemented in 1980. These students are the central focus of their families and are given the best care. As Student Tu said:

> *I came from Wuhan and I am the only child in my family. Before I came to the UK, my life was taken good care of by my parents. Their only hope for me is that I can study hard and get good results in academia. So I was very worried about my daily life, because I had never arranged my own life independently before I came to the UK.*

Eleven participant students aged between 22 and 25 graduated from China's

undergraduate universities, and this was their first overseas study experience. In the Cross-cultural adaptation process (Ward, Bochner & Furnham, 2001), motivation to study abroad plays an important role in determining the degree of integration and the learning outcome. “Push-pull” factors (Mazzarol & Soutar, 1987) divide the factors affecting studying abroad into two categories which are push factors and pull factors. Push factors refer to some factors which are generally unfavourable and negative for students to leave their home country and travel to study in foreign countries. Pull factors refer to some factors which are positive and advantageous to international students to study in the foreign country (Mazzarol & Soutar, 1987). According to the interviews and consideration of the push-pull factors, this section divides the factors and motivations that affect Chinese international students into three principal points: firstly the relatively short duration of a UK Master’s degree course, secondly the advantages of a British degree in the Chinese employment market and thirdly the more flexible entrance requirements for studying in the UK compared to universities in China.

8.4.1.1 One pull factor: one-year master’s degree course

In China, the advantage of age plays an important role in students’ career development. In some state-owned enterprises, once employees exceed a certain age, it is more difficult to gain promotion. Therefore, in order to lay a good foundation for their future career, students may want to gain a higher degree in a short time. The one-year of study postgraduate system in the UK is one of the reasons Chinese students choose the UK as a destination for study, as shown in the words of Student Lu.

> *China’s three-year Master’s degree course is quite long. Therefore, I chose to study abroad. Simultaneously, compared with the two-year Master’s course in North America, I can get a Master’s degree in the UK within one year, which means that I can start my career earlier.*

In addition, students consider the cost of studying abroad in the choice of destination. The average annual cost of studying abroad is high. Because of its

special one-year Master's degree course, the total cost of studying in the UK is less than the cost of many two-year Master's degree courses in other countries. Students think that they can spend less time and money to get a UK Master's degree which is internationally recognized. Student Xue said:

> *One-year Master's course is the main reason for attracting me to study in the UK. I can spend relatively little time and money to get my degree. My father asked me whether I wanted to study abroad or at home. I preferred to go abroad. It takes three years to get a Master's degree at home, which is too long for a girl.*

It can be seen that the one-year Master's degree course in the UK is one factor to attract Chinese students. Compared with the two-year or three-year Master's degree course in China, it is a practical choice for students to acquire knowledge and gain a degree in a shorter time. However, after international students start their life abroad, this pull factor of only spending one year studying in the UK may become a negative factor because of problems in students' social and cultural integration and learning integration. It is reflected in the interviews that one year may not be enough for international students to integrate into British social and cultural life. One year is not enough for students to develop their critical thinking. Student Cao explained the difficulty that she met.

> *One-year course is a big obstacle to my cultural integration. I have been working hard to communicate with the outside world and feel that I have made great progress in some areas. But unfortunately, this one-year course is coming to the end, and I will return to my motherland.*

Lecturer Wendy also explained a similar idea in this one-year Master's course.

> *Once students are used to reading, writing, and critical thinking. This will be improved. This is a long process. You cannot expect that one year will transform someone. We wouldn't expect that Master's degree students can grasp critical thinking in one year. If you identify some problems in*

critical thinking in Chinese international students, this is not surprising because it is a long journey.

8.4.1.2 The British master's degree gives competitive advantage in the Chinese employment market

People with higher education degrees are more likely to enjoy good job salaries and job satisfaction than those without a higher education qualification. Greenbank (2003) found that the average salary of graduates of higher education is higher than the average salary of non-graduates in all stages of their working life. Degrees play an important role in employment market in China. A Master's degree from a British university enhances the competitiveness of job seekers in the job market. Some mainland Chinese universities hold British higher education in high regard. Students believe that if they can successfully receive a Master's degree in the UK, they can have more competitive advantage in employment. Student San said:

> *I worked in my hometown for one year and I was not happy with that job. Studying in the UK can broaden my horizon, increase English ability and learn cultural knowledge. The most important thing is to increase my employment competitiveness.*

There are a large number of international enterprises in China. Post-graduate degrees are needed for some important positions in these international enterprises, and Master's graduates with overseas study experience are preferred. According to the Employment Report of Chinese College Students in 2018, 21.3% of 2018 graduates are unemployed six months after graduation. The report also shows that 33% of the employed graduates leave their jobs in one year. Under the pressure of employment, students who have a Master's degree from the UK have more advantages, and it is easier for them to find a satisfactory job. Student Ju pointed out:

> *My Bachelor's degree is on Chinese literature. I chose to study in the UK because my undergraduate course is difficult for employment and the*

employment area is too narrow. So I chose to switch to an education course.

8.4.1.3 Access regulations of UK Master's course are relatively easy

In China, the competition for the entrance examination for postgraduates is very fierce. The following table shows the number of postgraduate candidates and their enrolment ratio in the past three years:

Year	The number of candidates	Growth rate	Enrolment number	Received rate
2018	2.38 million	18.4%		Predicted: 4:1
2017	2.01 million	13.56%	0.50 million	4:1
2016	1.77 million	7%	0.49 million	3.4 :1

Table 8.1: the number of postgraduate candidates and their enrolment ratio from 2016 to 2018

There are unified entrance examinations for Master's degrees in China. From table 8.1 it can be seen that there are an increasing number of students taking part in the postgraduate examinations in China over these three years. Student Tu said that: "*I failed one postgraduate exam*". Student Zhao stated that:" *I do not like the politics course and it is difficult for me to memorize*". Students San and Ju thought that they had little chance of getting into Master's degree courses in China because they wanted to change their course subject at the postgraduate stage, whereas they felt this would be possible in the UK.

The access requirements of Master's degree courses in the UK have no unified entrance examination. Universities in the UK allow undergraduates to change to a different subject for their postgraduate course. Compared with the Chinese rigid examination system, this UK graduate application system meets the needs of students, and is also one pull factor of British higher education to attract Chinese international students. The following chart summarizes the major factors to attract Chinese students to study to the UK.

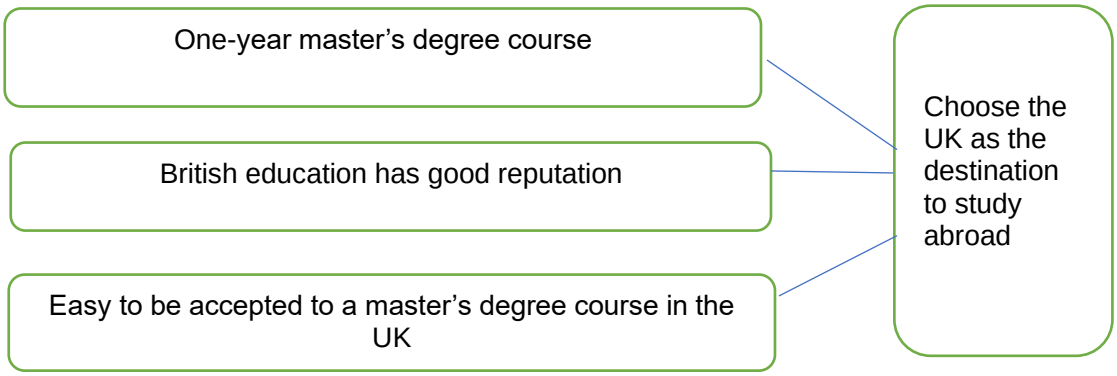


Figure 8.2: The major factors to attract Chinese students to study in the UK

8.4.2 Psychological integration

There is a traditional saying in China that "it is easy to live in a familiar environment, and it is difficult to stay in an unfamiliar place" (Shi, 1879). International students are likely to encounter various pressures. Student Ju recalled:

> *Whilst I came to school alone with my luggage, I didn't know anyone at that time. Because my English is not good, I could not communicate with local people freely. I even wanted to book a flight back to China soon.*

Psychological integration can be influenced by social support networks and changes in life circumstances (Ward, Bochner & Furnham, 2001). Social integration is a significant predictor of psychological adaptation. The quality of change in their life circumstances is also a direct factor affecting the psychological state of international students (Ward, Bochner & Furnham, 2001). So I analyse the psychological integration of Chinese international students from these two aspects, social support network and the positive life change factor.

(1) Social support network

A person's social support network is a major part of their social relations, and depends on a relatively stable relationship between people within a certain

social group. Maintaining a good social support network is beneficial to physical and mental health and relieving the pressure of life. Lack of a good social support network may have negative effects. Through their social support network, people solve and deal with the problems and difficulties encountered in life, so as to ensure sustainable development (Wang, 2013). Bochner, McLeod and Lin (1977) stated that international students have three major networks, which are a conational network, a network with host nationals and a multinational network. The function of a conational network is to affirm and express the culture of origin. The function of a network with host nationals is the instrumental facilitation of academic and professional aspirations. The main function of a multinational network may be more salient than a network with host nations (Gareis, Merkin & Goldman, 2011).

The help from compatriots can help international students reduce the pressure and anxiety in cross-cultural adaptation. This can explain why some students felt relaxed and enjoyed their initial period, whilst others felt depressed and homesick. Student Li reported:

> *Before I came to this university, on Wechat I met some Chinese students who were going to come to the same university this year to study their Master's. We often communicated with each other, and soon we became good friends. We even booked the same flight to come to the UK.*

Student Zhao also believed that help from other Chinese international students provided her with great psychological help in the initial stage, which was in her words:

> *I think I am a very lucky person. There were many Chinese students during my pre-sessional course. They often invited me to dinner. I like doing things with my Chinese friends.*

Hendrickson, Rosen and Aune (2011) pointed out that help from compatriots can help international students to quickly familiarize themselves with their new

cultural environment. The interviews with the participant students reflected that when they first went shopping in the city centre or supermarket, they needed to be together with other Chinese compatriots with some British life experience, and they could feel a sense of security in the group. In being with people from the same country, these international students greatly improved their self-esteem and gained cultural identity. Student Wei said:

> *In my flat, most of my roommates come from China. We cook and eat together every day. Apart from lecture time, I don't think living in the UK is different from living in China. Most of my good friends are Chinese.*

Student Zhao also lived in the Chinese group at the beginning of her overseas study.

> *At first, I didn't know where to buy the right clothes in the shopping area. If there were English people talking to me, I was worried that I could not understand what they were talking about, because some local people had a strong accent. Therefore, I chose to go shopping with other Chinese students who have lived in the UK. They taught me how to live here and I felt safe with them.*

Bochner, McLeod and Lin (1977) stated that the network with host nationals and a multinational network play an important role in helping international students reduce psychological stress. The more contacts with the people in host countries, the less learning and social difficulties the international students will encounter. However, the data from this research shows that the network with host nationals and a multinational network did not play a helpful role with Chinese international students because these students tended not to use these networks. When Chinese international students encounter psychological problems, they seldom talk to local people in the UK. Student Ju said:

> *When I encounter some psychological problems, such as depression and homesickness, I don't want to show these negative things to local people*

in the UK. First of all, some psychological problems are difficult to express in English. In addition, even if I confide my psychological difficulties to local friends or counselors, they will not fully understand, because they are not Chinese and cannot understand the culture.

Some Chinese international students seldom talk to non-Chinese about their psychological problems. They prefer to talk to their families or Chinese friends in the UK. Lecturer Keith explained that Chinese international students like to stay in Chinese communities, in his words:

I'm talking about students coming from a particular country – because they tend to be together all of the time and they feel comfortable in that community as well and there's nothing wrong with it but it means the development of communication including writing is quite limited.

If Chinese international students do not reveal their psychological problems, then universities in the UK cannot help them to solve their problems. For Chinese international students there is nothing wrong with seeking help from Chinese people with psychological issues, because they have the same language and cultural experience. However, Hendrickson, Rosen and Aune (2011) point out that foreign students depend too much on their compatriots and neglect their contacts with people from other nationalities, which will greatly affect their integration of social life.

(2) The positive life change factor

Life change is another major factor that can affect students' mental health and integration. Positive life changes can make students feel better. My research found that some Chinese international students felt that the natural environment in the UK is better protected than in China. Student Cao praised the environment and surroundings in which she studied:

I like the park beside my campus very much and the sky is always blue

and clear. Whilst I feel depressed or stressed, I look at the beautiful park to help me relieve my stress.

Student San also enjoyed the living environment in the UK, which can be seen in her words：

I began to feel very depressed when I thought that I would soon finish my Master's degree course and return to China. I really like the natural environment here. Every time I see squirrels and birds, I am very happy.

8.4.3 Psychological problems which are closely related to academic problems

Selby and Wood (1966) found that the psychological problems of foreign students are closely related to their learning. This research finds that one purpose of foreign students coming to the UK is to obtain a Master's degree. However, the difficulties they encounter in their study bring them pressure as illustrated by Student Ju:

I don't think that my psychological problems have obvious connection with social life. The main cause of psychological stress is from my study. The coursework in the first semester gave me a lot of pressure. I changed to a new major and I was not familiar with some professional knowledge and writing routines at first. I got low marks on my coursework. I am very disappointed with these low marks.

Student Li also said:

In my first learning period I wasn't satisfied with my performance in class. I often felt frustrated because I dared not to ask and answer questions in class.

Student Wu expressed her reaction to the same initial failure and feeling demoralisation:

I remember the most frustrating time when I came to the UK was when I wrote my first coursework. Because I didn't understand the writing standards and expectations in the UK, I encountered many problems in my first coursework, which includes how to apply the quotation criteria. At that time, I felt very helpless.

When students try to adapt to the English learning schedule and requirements, their psychological difficulties begin to decrease. Student Li was asked about her difficulties in the third interview, she answered confidently:

After I have adapted to the academic requirements in the UK, I feel that my psychological condition has improved. Because my academic performance has improved rapidly, I feel that I have more confidence and desire to strive for better results.

Bochner, McLeod and Lin (1977) stated that advice from teachers and professional consultants in universities can help overseas students better adapt to the new environment and reduce psychological stress. However, the strategy for Chinese international students to deal with psychological stress mainly relies on their own friends or the help from other Chinese people, as illustrated in Student Ju’s response:

Whilst I feel lonely or depressed, I call my friends in China or I will drink wine with my Chinese peers here.

Student Wei has a similar idea, which is in her words.

Whilst I encounter unhappy things, I will call my boyfriend in China. After I chatted with him about my bad feeling, I started to focus on solving problems.

8.4.4 Social and cultural integration

Language and communication skills play an important role in the communication and understanding between overseas students and their new culture. After analysing the coded data, several factors affecting the social and cultural integration of Chinese international students are explored, which are as follows.

(1) Chinese communities

As mentioned above, Chinese students mainly rely on the help of their Chinese compatriots for their psychological and emotional needs. This research also finds that Chinese students are often closely related to other Chinese people in many aspects of their daily life. In this way, they unconsciously form a Chinese community. Most of their nonprofessional cultural life takes place in this Chinese community. Student Xue said:

> *I rent a house with several Chinese students outside school. Every day after class, I go back to our small community in the UK. I speak Chinese all the time. I cook, shop and travel with my Chinese roommates. I even think I am living in China.*

Although Chinese international students have some friends from the UK or other countries, the interaction between them is not very frequent and close. When overseas students live in their own group, they feel very secure and have a sense of belonging, because they can communicate with each other in familiar ways.

In the acculturation model (Schumann, 1978), the acquisition of a second language is directly related to the process of cultural adaptation. The success of learners depends on how well they can adapt to the target language culture (Schumann, 1978). Hsu, Grant and Huang (1993) found that the more overseas students use local social media, the more likely they are to have better integration experience. Student Cao, Student Wu and Student San had the habit of browsing English websites to know local news. They showed a better experience of studying abroad. Student Cao was the only student who felt

confident to be interviewed in English.

Chinese students find it difficult to communicate with local British students. Many of their foreign friends are international students from other countries. Student Lu explained that:

> *Overseas students from other countries are more likely to become friends rather than local British students. Because English is also their second language, people will be more patient in communication. I don't have much contact with local English students. Firstly, there are not many British students among the students I contact. Secondly, some local British students did not show interest in communicating with me.*

Student Zhao had a similar opinion, which is in her words.

> *I don't know English students very well. Apart from academic topics, I don't know what I can talk to them about.*

Merrick (2004) pointed out that only 15% of Chinese students have British friends. Most of them associate with their compatriots or overseas students from other countries. There are two reasons that Chinese students choose to live in Chinese communities without much contact with the outside world. The first reason is that there are great differences in cultural traditions between China and the UK. Secondly, Chinese students are the largest group of students studying abroad on many British campuses. Therefore, it is difficult for Chinese students to move from the Chinese community they have built to a larger social background.

(2) Difficulties in social life

Students encounter many difficulties in social life. They may not know how to order food in local restaurants, and they may not understand the recipes for non-Chinese food. Student Zhao said in a depressed tone:

My social skills are really limited. I do not feel uncomfortable in daily life because I live in Chinese communities most of the time. However, when I come to a broader society, I deeply feel the inconvenience caused by the lack of cultural knowledge.

Because Chinese international students feel uncomfortable in communicating with the world outside of the Chinese communities, some students have abandoned participating in social and cultural activities. As a result, they are more closely connected with the Chinese communities. However, excessive preservation of national identity makes students lack the subjective motivation to integrate into local cultural customs (Ward & Searle,1991). This is a vicious circle for Chinese international students. The frequency and quality of cultural exchanges with people from host countries are the main factors determining their cross-cultural integration. If Chinese international students avoid contact with a wider social life because of difficulties, they will lose the opportunity to contact the outside world, which plays a negative role in their long-term cross-cultural integration. It is necessary for overseas students to learn social communication and survival skills. Although Chinese international students experience some cultural differences and shocks, these shocks can be a stimulus source for social communication (Zhang & Xu, 2007). Unfortunately, some Chinese international students take these shocks as a reason to avoid social life.

(3) The short period of study in the UK and academic pressure

The duration time of studying abroad plays an important role in the social and cultural integration of overseas students (Ward et al, 1998). The duration of a Master's degree in the UK for international full-time students is only a year, which may be too short for Chinese international students to achieve good cross-cultural integration. Lecturer Wendy said:

You cannot expect that one year will transform someone.

Students mentioned that when they began to study and live in the UK, they

realised that a year was not enough to adapt to the whole situation. A one-year Master's degree course may change from being an initial attraction to becoming a major cross-cultural barrier for students. Student Zhao said:

> *One year is really short. In this year, there is learning pressure and the learning tasks are heavy. I have to make sure that I can pass each coursework. Therefore, I must devote most of my time to my study. The time to participate in social and cultural activities has been greatly reduced. If I can stay in the UK for one more year, I believe I can do better.*

8.4.5 Academic integration

Due to the differences in higher education between China and Britain, Chinese international students encounter some difficulties in the process of integration, which are their emotional isolation, loneliness and "the culturally implicit nature of UK academic conventions" (Turner, 2006). In addition, the correct usage of academic English is also a challenge for Chinese international students. To cope with all these difficulties, these international students have exercised their own learning strategies to adapt to British academic standards. The academic difficulties encountered by Chinese international students are analysed below.

(1) Differences in philosophy of education

The philosophy of education has its own national characteristics (Qin, 2004). In Chinese classrooms, students are not expected to take the initiative to participate in class communication unless they are invited by teachers (Cross, 2011). This research found that Chinese international students belong to a group with large power distance to their lecturers, which is consistent with the research of Hofstede (1986). The long-term traditional culture and examination-oriented education have affected students to form a relatively firm psychological stereotype of being authority-oriented, teacher-oriented and book-oriented, and they may not dare to bravely question the problems in their study. Student Tu, who had been studying for nearly one year, said in the third round of interviews:

> *The atmosphere in Chinese classrooms may be restricted. Classrooms*

are tightly controlled by teachers. In the UK, I was amazed by the free atmosphere that teachers created for their students. Teachers advocate that every student can actively participate in the classroom, and they respect the students' views and ideas.

Student Zhao also put forward her view:

To be honest, I like the way they teach here. However, teachers in the UK rarely give an exact answer to a topic in class. They like to make the students discuss, and then generalize their views. But they don't tell who's right or who's wrong. This is different from the teaching method in China. Chinese teachers like to give definite answers to every topic. I guess the reason why teachers in the UK don't give an exact answer is that they want the students to continue to study and discuss after classes. This is a method of motivation.

Student Cao also said:

Critical thinking is a weakness of Chinese international students. If you ask them questions such as the description of a theory, many Chinese students can give a good answer. But if you ask them to evaluate other people's views or make their own interpretations of a theory, they will find it difficult to express their ideas. Chinese students rarely question the views of others. However, the cultivation of postgraduate students in the UK emphasizes the importance of criticism. If you only have the ability to describe things, your score will not be high.

Some students believe that British higher education is rigorous and demanding in relation to academic issues and conventions. One of the notable points is the requirement in writing. Student Zhao said:

In the UK, what impressed me most was the requirement in writing. When I was studying in China, I didn't need to find a lot of information and opinions to support my ideas. But in the UK, that's the basic requirement in writing. I

learned a lot in the process of writing, although such a process was painful. Before I write my coursework, I have to read a lot of literature and put reference.

Chinese students are also impressed by the academic assessment methods in the UK. Most of the assessment methods of British higher education are not only summative in nature, but will involve detailed formative feedback at some point in the assessment process. Many courses are continuously assessed, not just assessed by a final examination. Yorke (2003) believed that formative assessment is a way to motivate students to strive for good results. However, in China, students' academic performance in universities are mostly decided by a single exam at the end of each semester. Most Chinese students also stated that formative assessment has brought them a lot of pressure during the learning process. Student Xue said:

In China, the final exam determines my final score. As long as I start reviewing a month before the exam, not only can I pass the exam, but I can also get a high score. However, I can't use the same strategy to deal with the British assessment methods. I must study hard at every stage of the semester to make sure that I get a pass score at every section.

(2) Relationship between teachers and students

A good relationship between teachers and students can help students better adapt to the new academic standards (Spencer-Oatey & Xiong, 2003). Students' feedback showed that their relationship with teachers is equal and relaxed. Teachers respect students' views and seldom criticise students. Student Lu said:

Every lecturer is amiable. They discuss with their students in a learning attitude. Lecturers don't use their authority to force students to do things that they don't like.

Although the relationship between lecturers and students in the UK is more equal than that in China, it is difficult for students to establish a good relationship

with their lecturers outside the classroom. Student Tu complained:

> *In China, lecturers are willing to answer students' questions even in spare time. Whenever I'm in trouble, I can directly go to my lecturer's office for help. But in the UK, I must make a meeting appointment with my lecturer first. And my lecturer will decide when we will meet according to their schedule. Some academic difficulties need to be solved soon, but the appointment is late.*

Students think the help they get from their lecturers is limited. If they encounter difficulties, they are more inclined to solve problems by themselves or turn to other Chinese international students for help. The higher education system in the UK is different from that in China. Whilst international students are not familiar with the new system, they may not take the initiative to use them. For many international students, there is a gap in both culture and practice. Teachers' tutoring varies in different countries. Students need time to understand how the system works and how to access resources.

8.5 Language ceiling in Chinese international students' learning journey

Despite clear differences between the levels of progress of the students, most of them share a difficulty in breaking through a ceiling in their language proficiency which limits their ability to achieve academic success. In English speaking countries, the English language becomes the monolingual control system and holds the priority of education and teaching evaluation (Han, Zhang & Singh, 2014). Student Lu also stated that "*China is a big country, but not a big academic country. The use of the English language is dominant in international academia*". Because their English language ability is not strong, some Chinese international students are unable to show their true thoughts and only choose the views within the scope of their language ability. Some of these examples are:

> Student Li: *When I am thinking, I can think in a complicated way. However, my language ability is not good, I try to write in an easy and simple way in English, which cannot fully express what I think.*

Student Liu: *I can think in a sophisticated way and I can only write in English as simply as I can.*

Student Ju: *My English ability is not good. I try to write in a simple way.*

Student Wu: *I think in Chinese, which can be comprehensive and complex. But whilst using English to express, I want to express simply because my English language ability is not good.*

Student Tu: *I find language is a barrier in writing in English. I intend to write in a quite simple way.*

Student Wei: *My English is not good. Sometimes I try to avoid writing some complicated ideas in English.*

Chinese international students realise that language can still be a barrier in their learning journey even though they achieved a satisfactory score in their IELTS language test or their pre-sessional language test. Student Lu said that *"sometimes I cannot understand reading materials because of language ability."* Student Xue stated that *"If I have difficulty in understanding the feedback, I think that many Chinese international students will surely turn to their friends firstly because of their poor language ability. I am one of them."* Student Li expressed her feeling in communication: *"When communicating with peers from other countries, I do not want to talk. If my English speaking ability is better, I will find it easier to communicate with others."* Student Wu added: *"When I cannot understand the feedback, I tend to ask Chinese friends or classmates because my communication in English is not good."* The lack of proficiency in English language prompts Chinese international students to resist communication with native speakers and lecturers. Because of the lack of fluent English communication skills, Chinese international students fear the negative evaluation of English lecturers and peers. They try to avoid meaningful interaction with their lecturers and peers, which reduces their chances of

developing critical thinking. Chinese international students' limited English proficiency has become an obstacle for them to express their critical thinking. They are often quiet in group discussions, so they may be regarded as not willing to participate in critical thinking training activities. In fact they may be just nervous about their English language ability. Student Wu gave her opinion:

> *"Sometimes Chinese students are quiet and they are afraid of communicating with their tutors because they are scared of making mistakes and losing face. Some students want to ask questions in class, but they are afraid of making mistakes in front of other non-Chinese students. They are afraid that they cannot express themselves in English clearly"* (Student Wu).

Chinese international students have motivation to develop their language ability, especially communication skills. Student Liu said that she wants to improve her language ability. On talking about the biggest disadvantages in their Master's learning journey, Student Tu said: "*In the UK I have little communication with the non- Chinese classmates. I do not speak English apart from in the lectures. I still live in a small Chinese community*". Lecturer Keith added that nowadays it is possible for Chinese international students to just live in a Chinese community in the UK. Student Wu has a similar view to Student Tu on talking about the regret of her Master's learning journey. "*The ability to speak English has not improved a lot. The proportion of Chinese international students is relatively high and I am surrounded by Chinese friends. There are few chances for me to practise spoken English and the lecture time is quite limited. I am living in a small Chinese community*" (Student Wu).

After people come to a new environment and experience the loss of familiar rules and habits, they will have culture shock (Oberg, 1960). The anxiety may disappear as time goes on and people may adapt to the new cultural environment. Culture shock can be stressful at the initial stage of contact with a new culture. Furnham (1994) points out that different languages, religions, moral concepts, gender relations, and rules of behaviour can also lead to cultural differences, and some simple tasks can become very complex or even

impossible in the context of culture.

Some Chinese international students choose to stay in their small Chinese community, which may slow down their cultural adaptation and limit their communication ability. How to help these Chinese international students with their cultural adaptation and develop their language proficiency are factors that education professionals need to consider. Student Xue and Student Zhao complained that there was not enough lecture time and there were few chances to practise speaking English with non-Chinese speakers. The integration of additional English language components in Chinese international students' Master's course may help to break through the ceiling of the language proficiency.

8.6 Chapter summary

In this section, three groups of learners have different development levels in critical thinking. Four participant students have made continuous and prominent progress; Six participant students have made some progress; One student has made little progress. The reasons contributing to different development traits include goal orientation, reflective thinking, cognitive ability and the affective dispositions and emotional qualities of critical thinking.

Students Cao, San, Wu and Li have made significant progress. They all have prominent mastery goal and performance goal. They can mobilize learning strategies which are conducive to the development of critical thinking skills, and improve themselves through a comprehensive self-reflection after the completion of tasks.

Students Zhao, Tu, Liu, Wei, Lu and Xue have made some progress. They focus more on performance goal than mastery goal. They can manage to finish their tasks and meet the requirements of their Master's degree course. However, their cognitive ability and the affective dispositions and emotional qualities of critical thinking still need to be improved in the future.

Student Ju has relatively weak critical thinking skills and English language

abilities. Student Ju is inclined to use defensive strategy when he is facing challenges in understanding the tutors' views, the feedback and teaching materials from the early stage to the end of his learning journey.

University institutions could organise activities to help international students to understand British culture and to increase their opportunities to participate in campus activities. Chinese international students should realise that excessively staying with other students from China will have an adverse effect on the process and structure of their cross-cultural integration. There is no doubt that living with people from the same culture and country makes life easier and more comfortable. However, my research also finds that the more contacts and exchanges with local culture, the more positive experiences and the fewer psychological problems Chinese students experience. Students' language ability and social competence are developed in communication. If Chinese international students want to have a positive experience of studying abroad, it is an advisable choice to venture out of the Chinese community and actively participate in the broader social life. For Chinese international students, leaving the Chinese community and participating in multicultural social life may bring inconvenience or pressure at the beginning, but as long as they can persist, the final results will be positive. Student Cao and San in my research have been participating in local community activities unremittingly. Eventually, their experience and satisfaction of studying abroad outweigh those of students who stay in Chinese communities. Therefore, it is an important and practical suggestion for Chinese international students to become involved in local social and cultural life and not to rely on Chinese communities excessively.

There may be some misunderstandings about the respective cultures and norms between lecturers and Chinese international students. Some Chinese international students have academic difficulties due to their lack of understanding of British academic systems, expectations and traditions. Lecturers may have the impression that Chinese students like to keep silent in classrooms. It is not enough for these students to unilaterally integrate into British education culture. Lecturers and staff in universities also need to

understand the learning culture of their students, especially Chinese students who have become the main group of international students studying in the UK and an important financial income source in British higher education. Cultural adaptation requires both students and lecturers to work hard to understand each other's cultural norms. Cross-cultural integration is not only for the visiting students, but also for the people in the host country.

Chinese international students' limited English proficiency has become an obstacle for them to express their critical thinking. Incorporating more English language components in Chinese international students' Master's course may contribute to breaking through the ceiling in Chinese international students' English proficiency. Students should be more active and have more frequent contact with lecturers and related working staff in universities. From the interviews, Chinese students tend not to seek professional help when they encounter difficulties. They do not make full use of the services provided by universities. Some of them even do not know what services their universities are offering. Chinese international students should make more active use of these services and facilities, which can help them effectively solve some difficulties and improve their satisfaction whilst studying in the UK.

Chapter Nine: Conclusions and implications

Four research questions were explored in this research, which are repeated as a reminder to the reader, as follows:
(1) How is critical thinking described and understood by Chinese international students and their lecturers in the context of a UK Master's degree course?
(2) How do Chinese international students demonstrate critical thinking skills in their academic writing?
(3) What factors contribute to the development of critical thinking of these Chinese international students?
(4) How do Chinese students describe and understand the development of their critical thinking skills on the way they might solve a named professional challenge when they return to China?

This qualitative research was carried out with 11 Chinese international students and five of their lecturers in one UK university. These participant students were Master's degree students and the duration of the period for data collection was one year. The Chinese social media 'Wechat' was used for recruitment of research participant students.

9.1 The development of critical thinking in participant students

Guided by the theory of the relationship between 'social influences', 'achievement outcomes' and 'self-influences' in social constructivism, this research explored the personal, environmental and cultural factors affecting the development of critical thinking and academic writing. Almost all the eleven participant students had made some progress. These eleven learners were divided into three different development groups in critical thinking.

Student Li, Cao, San and Wu benefitted from the combined effects of having mastery and performance goals. They had positive situational awareness and enjoyed active interaction with their peers and lecturers. They implemented learning strategies which contributed to the development of their critical thinking

abilities and they made use of positive social environmental factors. These four students formed a higher sense of self-efficacy and improved their use of learning strategy after each stage of their learning journey, which promoted a virtuous circle of social and self-development.

Student Zhao, Xue, Lu, Liu, Tu and Wei made some progress. These six students had more focus on performance goals than mastery goals. They met the requirements of their Master's degree course and also adopted positive learning strategies to facilitate the completion of their learning tasks. However, their self-reflection is not comprehensive. These students still feel a large power distance between them and lecturers and authorities, and they are more likely to use defensive strategies in their learning journey. Their cognitive ability and the affective dispositions and emotional qualities of critical thinking still need improvement.

Student Ju made little progress in the learning journey. He had relatively weak critical thinking skills and quite poor language abilities at the beginning of his learning journey. Student Ju felt difficulty in understanding the tutors' views, the feedback and teaching materials from the early stage to the end of his learning journey. He was inclined to use defensive strategy whilst he was facing these challenges. He is not open-minded towards dispute and lacks motivation to challenge himself. At the final stage of his Master's degree study, the development of critical thinking skills was not demonstrated.

9.2 Conclusions from the four research questions

9.2.1 How critical thinking is defined and understood

A clear concept of what critical thinking is has been elusive for a long period (Moore, 2013). Scholars have launched discussion and formed different theoretical models and used varied research methods on the concept of critical thinking. These theories are organised and represented into the integrated table in Appendix 4 which was used in data analysis in my research. Some common characteristics can be drawn from the literature review on critical thinking

theories. Firstly, critical thinking theories identify critical thinking skills. Critical thinking skills include the skills to ask questions; the skills to understand, evaluate and argue; the skills to make reasonable judgments and the skills to solve problems. Secondly, critical thinking is closely related to rational and logical reasoning ability and may be equivalent to problem-solving. Thirdly, critical thinkers should have certain affective dispositions and emotional qualities, such as openness and honesty. Fourthly, critical thinking theory includes scepticism. Fifthly, the process of critical thinking includes metacognition and self-regulation, which means that thinkers need to use critical thinking to monitor, adjust and amend their own thinking in the process. Finally, there is a link between critical thinking and morality. Critical thinking requires a certain moral foundation.

The idea ‘looking at ideas and views from more than one perspective’ from participant students shows that they believe that the world is complex and diverse, and there are many ways to solve a problem. Students stated the importance of having their own ideas and making judgment. Students also stated that critical thinking includes reflective thinking. Chinese international students are aware of the importance of asking questions and looking at things dialectically.

Students think that intellect is in the leading position in critical thinking, but critical thinking includes both intellect and emotions. They also realise the importance of looking at things with rationality. Critical thinkers should have certain affective dispositions and emotional qualities such as passion for exploring the unknown, vigilance of their own prejudices and biases, and an open attitude towards dispute. From this finding, it also shows that knowledge and ability cannot easily be migrated to another discipline, but each discipline involves critical thinking and critical thinking skills can be developed through professional learning and the training of thinking specific to the discipline.

This research also identified the following views on critical thinking from participants. Firstly, critical thinking does not mean being negative, it involves

reflective thinking and being constructive. Secondly, critical thinking does not equate to logic, it is a cognitive act. Thirdly, critical thinking not only includes skills but also includes morality and rationality.

9.2.2 How Chinese international students demonstrate critical thinking in their academic writing

The combination of the cultivation of critical thinking and academic writing is important in higher education in the UK. Participant lecturers devote much effort to choosing the topics for students' assignments as they consider a good topic to be the starting point of guiding students to think critically. Once the research question is understood and analysed, participant students find arguments to justify their ideas which involves the process of forming judgment and collecting data. Participant students also pay attention to comparing and contrasting, which involves clarification and evaluation of evidence. These students can demonstrate more than one perspective in their academic writing, which can be interpreted that it is not enough to just evaluate single argumentation or reasoning. These students have a position or views on the main questions or topics, which is also related with considering other relevant evidence and arguments.

Critical reading is promoted heavily by participant lecturers and can benefit academic writing. It is also an important way to cultivate critical thinking. Critical reading enables readers to distinguish between important and unimportant information, to separate facts from points of view, and to determine the purpose of the author.

Chinese international students may improve by demonstrating critical thinking skills in their academic writing. They may not have improved in affective dispositions and emotional qualities of critical thinking. Lecturers may need to help students break the consciousness of self-protection and encourage them to be open-minded.

The findings of this research show that all the participant students argued that

language ability is not directly related to critical thinking. Floyd (2011) stated that critical thinking is more difficult in a second language and she arrived at this view following research that used a small scale experimental approach. I argue that the findings from the interviews with Chinese international students indicate that language ability is not directly related with critical thinking. However, language can be a barrier in writing critically for Chinese international students.

Students realised that there are differences between Chinese academic writing and English academic writing. Different thinking styles affect the word usages and syntax. Students pointed out three points on different rhetoric patterns in writing. The three points are: Firstly, the way of expression in Chinese is relatively implicit and the way of English is more direct. Secondly, in English academic writing, the writer needs to make the argument easy to understand. Thirdly, in Chinese academic writing, the reader needs to make more effort in understanding and interpretation. There are also differences in the development of discourses. In English, the theme often appears at the beginning of an article, demonstrating the argument. English paragraphs and articles often begin with a concise topic sentence, followed by convincing arguments. In contrast, discourses in Chinese often begin with seemingly irrelevant topics. Chinese thinking tends to be circular. Arguments are usually given in a circumlocutive way. Repetitions are used around the theme in a circular way.

These differences make English academic writing more challenging for Chinese international students. In addition, English teachers and lecturers in China may not know how to reference according to Harvard expectations and conventions and how to make sure research data are reliable. It has been proven that the training in academic writing that these Chinese international students received in China had not prepared them well for academic writing at an advanced level in the UK. The shortage of qualified academic English teachers in China is a big challenge for the Chinese education system. The development of teachers of English for academic purposes in China may give new opportunities for leaders and policymakers in the British education system to consider.

The pre-sessional course Chinese international students attended was highly recommended by them. It is important that the delivery of a Master's programme in any subject contains an explicit treatment of critical thinking skills. Language tutors may have an important and useful set of skills to apply to the preparation of students for their various Master's programmes.

9.2.3 Factors contributing to the development in critical thinking of Chinese international students

Table 6 was created to contain a graphic representation of teaching pedagogies and feedback contributing to the development in critical thinking. It contains: 'the teaching content', 'teaching and learning forms' and 'feedback'. The teaching content means that lecturers promoted several ways which guide students in their study, encouraging students to ask and raise questions and different ways to engage critical thinking in teaching activities. In the teaching and learning forms, teachers and lecturers guide students to participate in group study, group discussions and tutorials. Reading and writing independently is also necessary in the development of students' critical thinking. Feedback guides students to understand, think and explore problems from different angles and levels. This learning and teaching mode embodies the teaching concept of student centred and teacher guided. Students are encouraged to be open-minded and innovative to analyse and solve problems and also form their own independent consciousness.

Some Chinese international students find it difficult to fully understand the feedback they received from their lecturers. There appear to be differences between the perspectives of lecturers in what their feedback consists of and how it is intended to be used, and how students interpret and use that feedback. It is necessary to increase students' engagement with their feedback using different methods.

9.2.4 How Chinese students describe and understand the development of their critical thinking skills on the way they might solve a named professional challenge when they return to China

Participant students expressed a number of views on how their experience of critical thinking in the UK will influence how they will address challenges upon return to the Chinese education system. Cultivating critical thinking should be started from an early age. Teachers should play a leading role, and students are able to participate in the whole process of teaching. Every student has a distinct personality and infinite potential and teaching students according to their aptitude should be promoted. A new teaching culture is promoted by the participants students. In this culture, teachers shall not only consciously teach students some facts and skills, but also create a good learning environment for them to discover and think for themselves, encourage students to question and discuss various views rationally, raise questions and assumptions, and actively explore and test them. Simultaneously, there is a need to cultivate students' critical thinking affective disposition so they may become open-minded critical thinkers. Self-improvement is needed as a leader and teacher in education. Furthermore, workshops and discussions can be held to invite interested leaders and teachers to form a study group to share experiences on teaching strategies and methods of critical thinking ability.

9.3 East meets West: Chinese international students in the UK

Both Chinese and Western critical thinking involve important nodes, which are questioning (doubts) and making reasonable judgments. However, there are some differences. Firstly, there is a difference in ‘questioning’. Tsze-chang (Confucius’ student) was learning with a view to official emolument (to work in a government position). He asked Confucius how he could be successful. Confucius answered: “Hear much and put aside the points of which you stand in doubt, while you speak cautiously at the same time of the others: - then you will afford few occasions for blame. When one gives few occasions for blame in his words, and few occasions for repentance in his conduct, he is in his way to get emolument” (Analects of Confucius, Vol 2). This demonstrates that features of

‘questioning’ in China are mainly related to puzzlement, queries, and difficult issues from learners’ learning process, they are not related to the questioning of authorities. However, the ‘questioning’ of Socrates mainly refers to scepticism and challenge, especially the challenge and even denial of authority. The doubts and questioning in Confucianism and even the Chinese culture are different from Socrates’ probing questioning. Secondly, there is also a difference in ‘reasoning’. The ‘reasoning’ of critical thinking in China mainly refers to the identification of inner self-reflection, and does not stress the carrier of ‘reasoning’ - public argumentation. In Confucius’ views, this kind of self-reflection does not have to be obvious in students’ talk or proactive actions and learning to identify with group interests is more important for students than learning to express their own opinions (Analects of Confucius). People need to be respectful, courteous and cautious (Analects of Confucius). Confucian thinkers speak and act cautiously and do not feel it is necessary to speak out aloud their thoughts. However, since Socrates, Western-style critical thinking has always emphasized the use of open ‘argumentation’ to achieve ‘reasoning’ and has regarded the external interaction and the open confrontation of conflicting opinions as the basic approach of ‘reasoning’.

These differences can be related to current education problems in China. Firstly, Gaokao (the National College entrance examination) is the main teaching target and education is exam oriented. In China, the pressure to enter a good university for every student, family and school is directed by exam-oriented education. Gaokao and exam-oriented education are related with the education policy made by the authorities in China. Teachers and educators teach students to ask questions, solve puzzles and make judgments in their learning journey, but they may not influence them to question the authorities and policy makers in education. Secondly, in the current education culture, teachers teach students facts and skills and may not encourage students to question and discuss various views in public. Teachers may not encourage students to speak out their own ideas and to have more discussion in the classroom.

English language as a monolingual control system holds the primary position in

education and teaching evaluation of students. English has a high international position in academia. The restricted English language of Chinese international students and scholars puts them at a disadvantage in academia.

This research found that Chinese international students belong to a group with large power distance to their lecturers, which is consistent with the research of Hofstede (1986). Its features in school education are as follows: parents educate children to be obedient, and children's respect for parents and elderly relatives are basic and lifelong virtues; the students revere teachers (even outside the school), as the teachers are not only knowledgeable experts, but a source of wisdom and moral models; teachers should have all the initiative in the classroom and impart personal wisdom. The quality of students' learning hinges on the excellence of teachers, and students should not openly question teachers. Students have a relatively strong psychological stereotype of being authority-oriented, teacher-oriented and book-oriented. They are used to taking orders and being given answers from their lecturers. However, the abilities of self-directed and self-regulated learning are strongly required in a Master's degree course in the UK.

Critical thinking cannot be used as a means of comparing different educational cultures. Whether Chinese students study in Western countries or introduce critical thinking in Western countries into Chinese education, a more equal perspective is needed, blurring the critical thinking mode of the West or China, actively utilizing and integrating new and old knowledge to promote critical thinking.

The cultivation of critical thinking is the target for all students and Chinese international students are not separated as a special group. Developing critical thinking is a lifelong process and we wouldn't expect that Master's degree students can gain proficiency in one year. The development of critical thinking is a lifelong process of becoming increasingly more critical.

9.4 Contribution to knowledge

The contribution to knowledge of this thesis lies principally in presenting an understanding of the development of critical thinking skills in specific participant students by synthesis of their existing knowledge from their own tradition and ideology with the different expectations of their UK education culture and how they may apply this in constructive new solutions to current education problems in China. This research provides some theoretical and practical reference for researchers who are engaged in the demonstration of critical thinking in academic writing. It provides a new perspective on research in the intercultural adaptation of international students from China. For Chinese scholars, this research explores the integration of critical thinking with academic writing, which is considered an area for development in China and it therefore gives Chinese scholars teaching guidance.

The contribution of this research is manifested in three aspects. Firstly, critical thinking and its development are not absent from Chinese thinking about education. There are elements of critical thinking very clearly included in Chinese traditional culture, which can be traced back to the learning theories of Confucius and Mencius, but also they find a place in with work of contemporary theorists. China has its own characteristics in politics, economy, science, population and the education system which have jointly formed a unique cultural background. There will certainly be some cultural obstacles for western critical thinking ideas, which originated from the western cultural background, to develop under the Chinese cultural background. However, this is not to say that the movement of critical thinking is exclusive to the West and that it is incompatible with Chinese culture.

Secondly, the findings from the interviews with Chinese international students indicate that language ability is not directly related to critical thinking. However, language can be a barrier in writing critically for Chinese international students, for example they may lack familiarity with structural schemata and with expected usage of academic conventions. There are different rhetorical patterns in academic writing, which need to be learned but too often it is assumed that they

are known. Different ways of thinking about how writing should be structured may affect choice of vocabulary and the use of syntax in the drafting of assignments.

Thirdly, Table 6 provides a graphic representation of teaching content, pedagogies and feedback contributing to the development of critical thinking. It presents a model of how teaching and learning with critical thinking encourages students to discover and explore actively under the guidance of teachers. It also places students at the centre of learning and cultivates students' thinking ability, practical ability and innovative consciousness in order to help students to realise self-development. This teaching and learning mode advocates relieving constraints on students thinking and allowing students to play a main role in learning freely.

9.5 Implications for practice

Chinese international students should be made aware of and accept that excessively staying with other students from China will have an adverse effect on the process and structure of their cross-cultural integration. They belong to a high power distance culture and are reluctant to communicate with their lecturers. They also feel uncomfortable in communicating with the world outside of the Chinese communities and some students have abandoned participating in social and cultural activities beyond their own cultural and linguistic community. If they avoid contact with a wider social life because of these difficulties, they will lose the opportunity to contact and communicate with the outside world, which plays a negative role in their long-term cross-cultural integration.

Chinese students have become the main group of international students in Western higher education. Chinese international students account for more than 50% of the total number of postgraduate students in some courses in universities in the UK (Universities UK International, 2017). It is not simply the case that Chinese international students must unilaterally integrate into British education culture. Lecturers and staff in universities also need to understand the learning culture of their students. This is especially significant because Chinese

students have become the main group of international students in the UK and a major financial income source in British higher education.

There appear to be differences between the perspectives of lecturers in what their feedback consists of and how it is intended to be used, and how students interpret and use that feedback. Tutors need to find ways to ensure their feedback has been understood, and students develop skills in how to interpret feedback. This would allow greater continuity between written feedback and the discussions that take place in a seminar room.

9.6 Limitations of this research and the implications for further research

9.6.1 The limitations of this research

(1) Research participants

Because this research uses case study as research methodology, it has certain limitations in the number of research participants. My research used 11 Chinese international students in one Master's degree course in one University in the UK, which may be difficult as such a small number cannot objectively and comprehensively represent the whole group of Chinese students studying in the UK. However, their perspectives can be considered alongside other studies that might be undertaken in the future. Also, this Master's degree course had students from other non-Chinese backgrounds and if they were included as participant students, it may have given additional opportunities for contributions to research looking at the perspectives of students from a variety of international backgrounds.

(2) Impact of discipline

Despite the reservation expressed above, the use of eleven participant students resulted in a range of views suitable for analysis and discussion. The research participants were from the same university - 'University One' and all studied the same course. My research background is in education and language learning,

and therefore I chose participant students who all study in the area of social science. It may be argued that research participants should be chosen from different universities and study different courses for their Master's degree. The participant students in future research may be chosen from different universities and the Master's courses can be varied in the areas of both social and natural sciences.

9.6.2 The implications for further research

A research programme which investigates the understanding and application of critical thinking and which uses a larger number of participants may provide a wider and more reliable data base. Research with participants from a number of cultural backgrounds which include students from British background may provide further insight into how critical thinking presents challenges to students regardless of cultural background and how this is affected by both educational background and power distance relations. Recruiting participants from a range of disciplines may allow further analysis, discussion and understanding of how critical thinking is required to be demonstrated in different disciplines.

A further area of research could be an extension and follow up of my fourth research question of how Chinese students describe and understand the development of their critical thinking on the way they might solve a named professional challenge when they return to China. The final interview with the eleven participant students was at the end of their Master's degree learning journey and was before these students returned to China. These participant students are currently all in China. Eight of them are working in the area of education. It may be rewarding to compare to the views they gave when they were studying their Master's degree in the UK with their actual experience on return to China. They may encounter different professional challenges, and may have different views on how to develop critical thinking in their real teaching life in China. It could also be interesting because they could discuss what they perceive to be the longer term impact on them of their experiences with the challenges and opportunities of the UK higher education system and to what extent they believe that they apply critical reasoning skills to their professional

lives in China.

9.7 My personal reflection

9.7.1 Case study: insider and outsider

I have an insider perspective in the process of research. I am also a Chinese international student and I share similar experiences with these participant students. We used Wechat social media to share life and study experiences. These participant students used Chinese to talk with me about their feeling, puzzles and achievements. As a researcher, I had to remind myself that I should keep an outsider perspective. In the data analysis, I experienced a relatively long psychological process of resisting personal preferences. I reminded myself to make judgment based on the collected data objectively rather than on my own emotions and intuitions. I tried to keep a rational and objective distance throughout the whole research process.

9.7.2 My own development of critical thinking in the research journey

The Delphi report defines 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” (Facione, 1990, p.2). One factor of critical thinking is that the process of critical thinking includes metacognition and self-regulation, which means that thinkers need to use critical thinking to monitor, adjust and amend their own thinking in the process. Looking back on the past four years, I deeply feel that my PhD study and daily life are more and more influenced by awareness of critical thinking.

9.7.2.1 Making judgment in exploration

The first year of my research was the continuous learning stage of critical thinking theory and I studied original literature on critical thinking. In this process, my experience was that philosophers, psychologists, educators and teachers have their own perspectives on the concept of critical thinking. Comparing these

perspectives carefully and referring to my own empirical research, I designed the four research questions.

The choice of the research methodology in my research has experienced some change and adjustment. My initial plan was to carry out empirical research using quantitative methodology at one university in China in an experimental study. However, I found that a proposal to set up an experimental group and control group was not mature and realistic. I therefore changed my plan, and carried out a case study instead of an experimental study. This adjustment led to my development of a more pragmatic attitude, which is to consider the realistic conditions and practical plan. After deciding upon the case study method, my next task was to identify the philosophical theory for the framework of exploring the development of students' critical thinking skills. By understanding and comparing different philosophical theories, I reached the conclusion that social constructivism and self-regulated learning theory should be the philosophical basis of this research.

9.7.2.2 The identity of the researcher: building a valid and reliable measurement tool

"Qualitative data are not restricted to the results of specified 'methods'; as noted earlier, you are the research instrument in a qualitative study, and your eyes and ears are the tools you use to make sense of what is going on" (Maxwell, 2005, p. 79). These tools can be understood as a measurement method in my research, and this method is used to measure the significance of previous studies, as well as to observe and evaluate my research objects. Simultaneously, this measurement tool is constantly used to measure myself. If I want to produce a valid and reliable research, the direction of my efforts should be to make myself a qualified researcher.

This measurement needs an accurate scale, that is, a reasonable and constant standard. As a researcher, the theoretical study, academic reading and evaluation, thesis writing and peer communication that I have experienced during my PhD study have constantly enhanced my understanding of qualified

standards. After studying critical thinking theory, I found some general rules through professional learning. One example is that research begins with putting forward meaningful questions. Another is that the development of disciplines is based on the definition of core concepts. A third example is that a theoretical argumentation cannot be separated from an effective reasoning process. A further example is that discussions are bound to benefit from multiple perspectives of thinking.

9.7.2.3 From research to life: thinking and making reasonable judgment

In the course of my research, I have acquired perspectives to observe the world of education and educational phenomena. Over the past four years, thinking of the following questions has had a profound impact on both my learning and life style: what is the definition of critical thinking? what ability does critical thinking show? what affective dispositions and emotional qualities should a critical thinker have? I gradually found that even in daily thinking activities, we need to constantly make judgments rather than using intuition. Rational judgment is valuable in our life. While cultures diverge, there has always been an understanding and valuing of critical in both European and Chinese traditions. Socrates said: “The unexamined life is not worth living” (cited from Plato’s Apology, 38a, pp.5-6). Confucius’ works also stated: “To this attainment of wisdom there are requisite the extensive study of what is good, accurate inquiry about it, careful reflection on it, the clear discrimination of it, and the earnest practice of it” (Qiao translated, 2012).

Also in the course of these four years I have found that my own critical thinking has developed. When I observe the people and things in life, I try to maintain my own independent judgment in the face of mainstream views. I also constantly take the initiative to reflect on myself, noticing my own limitations and prejudices, and consciously strive to look at issues in a comprehensive and reflective way. I have found myself more interested in participating in discussions. I have more patience to understand and analyse complex things. My research has changed me, and I have accepted the change. This understanding makes me feel how fortunate I am because I am personally a beneficiary of this research.

Appendices:

Appendix 1: FRISCO

FRISCO

F focus: identify the focus or central concern

R reason: identify and judge the acceptability of the reasons

I inference: judge the quality of the inference, assuming the reasons to be acceptable

S situation: pay close attention to the situation

C clarity: check to be sure that the language is clear

O overview: step back and look at it all as a whole.

(cited in Ennis, 1989)

Appendix 2: Paul and Elder's model

the standards
clarity
Accuracy; precision; relevance
Depth; significance; logic
Fairness; breadth

the elements	
purpose	assumption
question	concept
perspective	inference
information	consequences & implication

intellectual traits	
intellectual humility	intellectual integrity
intellectual perseverance	intellectual empathy
intellectual autonomy	intellectual courage
confidence in reason	fair-mindedness

Cited in Paul & Elder (2005). Critical Thinking: Learn the Tools the Best Thinkers Use. Pearson 1st edition.

Appendix 3: Critical Thinking Cognitive Skills and Affective Dispositions

COGNITIVE SKILLS	SUB-SKILLS	AFFECTIVE DISPOSITIONS
1. Interpretation	Categorization Decoding Significance Clarifying Meaning	1. Inquisitiveness with regard to a wide range of issues, 2. Concern to become and remain generally well-informed, 3. Alertness to opportunities to use CT. Trust in the processes of reasoned inquiry, 4. Self-confidence in one's own ability to reason, 5. Open-mindedness regarding divergent world views, 6. Flexibility in considering alternatives and opinions, 7. Understanding of the opinions of other people, 8. Fair-mindedness in appraising reasoning, honesty in facing one's own biases, prejudices, stereotypes, egocentric or sociocentric tendencies, 9. prudence in suspending, making or altering judgements, 10. willingness to reconsider and revise views where honest reflection suggests that change is warranted.
2. Analysis	Examining Ideas Identifying Arguments Analysing Arguments	
3. Evaluation	Assessing Claims Assessing Arguments	
4. Inference	Querying Evidence Conjecturing Alternatives Drawing Conclusions	
5. Explanation	Stating Results Justifying Procedures Presenting Arguments	
6. Self-regulation	Self-examination Self-correction	

Cited in Facione (1990, pp4-13; 2011, pp.5-11).

Appendix 4: The definitions of critical thinking in the existing literature

Thinkers	Main characteristics	Critical thinking skills	Attitude Tendency	Rational and logical reasoning ability, solving problems	Scepticism, Self-reflection	A link between critical thinking and morality
Socratic dialogue method	spiritual midwifery a questioning, rational humility and an open mind inspires others to follow the method of questioning		✓		✓	
John Dewey	aims for achieving purpose a regular and continuous process a process to form belief based on evidence and rational choice. (a) a felt difficulty; (b) its location and definition; (c) suggestion of possible solution; (d) development by reasoning of the bearings of the suggestion; (e) further observation and experiment leading to its acceptance or rejection; that is, the conclusion of belief or disbelief A sceptical doubting attitude		✓	✓	✓	✓

Glaser	(1) A questioning attitude. (2) Effectively reason about abstract and general knowledge. (3) Skills to use this attitude and knowledge.	✓	✓	✓		
Ennis	reasonable, reflective thinking that is focused on deciding what to believe and do Focus: the main problems and views should be identified firstly Reasons: based on empirical evidence or logical analysis Inference: to investigate whether existing theories can support existing conclusions Situation: the background and environment Clarification: the concept should be clarified clearly Overview: is not a simple one-way process.	✓		✓	✓	
Paul and Elder	your thinking while you're thinking in order to make your thinking better (reflective thinking) has moral characteristics. contains emotional factors. emphasizes self-criticism. emphasizes the role of dialogue. the emphasis on self-regulating cognitive activity		✓		✓	✓
Siegel	One is reasoning and evaluation The second is a critical spirit component		✓	✓		

Halpern	attitude and tendencies critical thinking skills metacognition to guide and evaluate thinking Critical thinking does not mean discovering mistakes	✓	✓		✓	
Facione	cognitive skills and affective dispositions purposeful, self-regulatory judgment	✓	✓		✓	
Ancient Chinese thinkers	an attitude of scepticism in learning. (Confucius) study of what is good, accurate inquiry about it, careful reflection on it, and earnest practice of it. (Mencius) self-examines themselves (Xunzi) you shall seek doubts (Zhuxi) introspection in learning self-reflection (Lu Jiuyuan) discerning clearly 明辨 (Confucius The Book of Rites) learning, inquiring, thinking, discerning and implementing, Creation (Zhang Zai) probe the truth (Zhu xi) Deep “Si (thinking)” turns into “Lü (considering)”. Eventually “Si” and “Lü” naturally develop into “Rui”. (two chengs)		✓	✓	✓	✓

Appendix 5: Ethical approval of this research

University Ethics Sub-Committee for Criminology and School of Education

30/11/2016

Ethics Reference: 8981-hq19-education

TO:
Name of Researcher Applicant: Hong Qian
Department: Education
Research Project Title: The Development of Critical Thinking Skills in the Academic Writing of Chinese Students and its Influence upon their Future Career: Case Study in a UK University

Dear Hong Qian,

RE: Ethics review of Research Study application

The University Ethics Sub-Committee for Criminology and School of Education has reviewed and discussed the above application.

1. Ethical opinion

The Sub-Committee grants ethical approval to the above research project on the basis described in the application form and supporting documentation, subject to the conditions specified below.

2. Summary of ethics review discussion

The Committee noted the following issues:
Thank you for amending your application in line with suggestions.

3. General conditions of the ethical approval

The ethics approval is subject to the following general conditions being met prior to the start of the project:

As the Principal Investigator, you are expected to deliver the research project in accordance with the University's policies and procedures, which includes the University's Research Code of Conduct and the University's Research Ethics Policy.

If relevant, management permission or approval (gate keeper role) must be obtained from host organisation prior to the start of the study at the site concerned.

4. Reporting requirements after ethical approval

You are expected to notify the Sub-Committee about:

- Significant amendments to the project
- Serious breaches of the protocol
- Annual progress reports
- Notifying the end of the study

5. Use of application information

Details from your ethics application will be stored on the University Ethics Online System. With your permission, the Sub-Committee may wish to use parts of the application in an anonymised format for training or sharing best practice. Please let me know if you do not want the application details to be used in this manner.

Best wishes for the success of this research project.

Yours sincerely,

Dr. Laura Brace
Chair

Appendix 6: Semi-structured interview questions with participant students on the MAIE course

1.1. Can you describe what critical thinking is?

1. 2. Do you think that critical thinking involves intellect more or emotions more? To what extent do you use both intellect and emotions to think critically?

2.1. How do you demonstrate critical thinking skills in your work samples? How do you write, or construct a paragraph to demonstrate your critical thinking?

2.2. Have you found the feedback helpful in guiding you to understand your ability to write critically and what you need to do to improve your critical writing?

3.1. What teaching pedagogies contribute to your development of critical thinking skills?

3.2. What factors contribute to your development of critical thinking skills?
Do you think critically in Chinese and then translate into English or do you think critically in English?

4.1. If you become a teacher or a leader in education after you return to China, how will you apply critical thinking skills to solving problems in your education institution/ education system in China?

Thank you for your time

End of interview

Digital recorder turned off.

Appendix 7: Semi-structured interview questions for the participant lecturers on the MAIE course

1.1 What is your interpretation of the term “critical thinking”? What is the purpose of developing critical thinking skills for all students in the context of the MAIE? How about Chinese international students?

1.2 Do you think that critical thinking involves intellect more or emotions more? Do you expect your students to use intellect more or emotions more in their critical thinking?

2.1 How do Chinese international students develop their critical writing skills to meet the intended learning outcomes in the programme specification and module specifications for developing critical writing skills? (This part is about developing students’ critical thinking skills in the assessments.)

2.2 How do you use the marking criteria to inform your formative feedback to students to improve their critical thinking on their assessments?

3.1 How do you illustrate, make explicit and enable engagement in critical thinking and writing in the classroom?

3.2 How do you approach and engage with feedback on classroom activities to encourage students to discuss, question, evaluate and reflect on their development of critical thinking and writing skills?

4.1 Is it one of your objectives to teach critical thinking that they can apply in their future career in China?

Thank you for your time

End of interview
Digital recorder turned off

Appendix 8: One example of Interview Transcripts

Interview with lecturer Keith

Interviewer: I'm doing some research about the development of CT skills among Chinese students. I'm using Chinese International students who are studying MAIE as my participant students, and now I interview several lecturers who are teaching MAIE. The first question. What is your interpretation of the term CT

Interviewee: The term CT is slightly difficult one to define. It depends on where you come from. Generally it means … the difficulty is to define CT without using the word 'critical'. I think it means making an independent assessment of the evidence provided to you, and in terms of learning I think, in a learning context it may be to do with not really trusting what you read as completely true, but also thinking about the strength of evidence you have in order to make an assessment for yourself. Probably its more to do with being independent, being an independent thinker

Interviewer: Developing CT skills is the purpose of students and lecturers in the context of the MAIE. Can I ask you what is the purpose of developing CT for students in the context of the MAIE

Interviewee: On a more practical level, its an MA Masters course so you need to adhere to the national standards in terms of the learning outcomes, so one of the outcomes is along the lines of someone being a critical thinker, and also Masters means mastery of a particular topic area which includes being a critical thinker and being able to come up with something new, being able to innovate. The other thing is the students who are on the course, and they will be graduating and in the future they will be working in some kind of educational context, so when you think of the demands of this time, of being able to be a critical thinker is an important attribute in the workplace and in society as well, so similar to other MA courses, this will have that kind of take on learning outcomes as well. So I think that's the general idea of reasons why

Interviewer: I interviewed some Chinese international students and for them CT is quite a new thing, we say the purpose of developing CT in the course of MAIE. Most of the students on MAIE are international students, but not only Chinese students. Chinese students may be 50%? What specialise for Chinese international students?

Interviewee: In terms of CT? In terms of the kinds of challenges they have?

Interviewer: Yes

Interviewee: It's a good question, we began to look at, I'm doing a research project with a colleague from Media and Communication which focuses digital literacy skills. We have

been collecting data for 5 or 6 years so far. There is something about CT skills that we have seen in our research as well. I think its partly one of the challenges could be the particular learning culture these particular students come from as well, but we don't really have strong evidence, but the evidence shows that their previous learning is shaped by what you might call Confucius learning culture, I don't know if that is an accurate thing to say

Interviewer: I think something is related with culture, and I talked with students and they say, and Im also sure the learning process in China, and there is a big entrance examination for entrance in Universities, and all education, high school education, that's the aim, the exam is the focus, the exam is everything, so what the teachers do at school, they just give the students, get them ready for the exams, and in some parts of China, this kind of school, they don't allow students to use mobiles, they don't allow students to have different ideas, they say you just need to know this standard answer to pass the test and there are also documentary to record this, and for Western media, they call this kind of school 'exam factory' like students are products from assembly line. We know CT you need to be independent thinker, independent learner, you need to know how to ask questions, but that kind of culture, all current educational system in China actually really restricts students CT. So some students say – after we went to High Education, they felt better, but in their basic education, 8 or 6 years, this part is already restricted

Interviewee: Exactly. So I think the particular learning culture, the academic culture might be one reason for lack of CT skills perhaps. But I think the interesting thing is, and I think there is something happening in the undergraduate studies as well, that probably the way the students are expected to behave in the classroom, and the way the assignments are set, that you have exams all the time, so if assessments are set in such a way that CT skills are not encouraged, they come from that kind of background, but it could be that students come from other countries as well, not necessarily from China, so it might be difficult to pinpoint that Chinese students are …

Interviewer: (interrupts) A special group

Interviewee: One particular subset within culture, where CT are not really encouraged. But if you think about it, children when they are born, and when they grow up they are already curious about the world, so education just tries to manage to stop that happening

Interviewer: Do you think CT involves intellect more, or emotions more?

Interviewee: In what way? What do you mean? Intellectual ability? I think its both. Its an intellectual skill, emotional skill

Interviewer: The main features of CT, it can include cognitive skills and affective dispositions

Interviewee: You can have an affective disposition as well. It's the stance people take. I think it can have an emotional dimension as well. I agree with that

Interviewer: If we want to do some research, we may choose something we are interested, it involves certain kinds of emotions, but we also need to try to avoid bias, this is also related with emotion

Interviewee: Yes

Interviewer: Do you expect your students to use intellect more or emotions more in their CT?

Interviewee: I would say there should be a balance. In terms of someone's capacity for demonstration of CT skills I would like to see more intellectual questioning, but you need to have some emotional response as well, but in an academic context probably you are looking at more intellectual

Interviewer: How do Chinese international students develop their CT skills to meet the intended learning outcomes in their module, in their programme

Interviewee: Its how we design the course, and how we design individual lessons within each module, and how we deliver the lessons as well, so we can deliver our lessons in a way students become passive observers of the teachers performance if you like, you can be a very good teacher, lecturer, you can perform very well in the classroom and they might like it, with nice powerpoint presentations, but if the teacher is giving the knowledge to students, then I don't think it will be any different from the way they have learned in the past, so the requirement for us is to develop our lessons in such a way that students do not necessarily just only acquire knowledge, but interact and give enough time to critique and present, so giving enough time for personal reflections and group work activities and talking to each other and trying to ask each other questions, and that kind of things, trying to raise their curiosity in the topic and then trying to give them the tools so that they can learn by themselves. I think this applies not only to MAIE but other Masters courses as well. If you take one module you have something like 24 hours of learning contact time, but if you think about the total number of learning hours it is 300, so 24 hours the lecturer will be meeting students in a seminar or a lecture, but for the rest of the time for students to do their own work and this rest of the time includes them working on their assignments as well, so when we create our assignment topics for them to do, we need to create them in such a way that students can develop their CT skills and independent learning skills and demonstrate those as well and students will have 2 or 3 hours of tutorial time, and one of the things with these students is that not many of them take this opportunity for individual tutorials so these are the kind of things where students can have help with their own thinking and negotiate with the tutor, challenge the tutor, the tutor will challenge students, and so on. There are some students who do that very well, but the majority unfortunately

Interviewer: (interrupts) They are not doing well in their tutorial

Interviewee: True, and the other way students can develop their CT skills is how they engage with their feedback from assignments. Some students are quite good and in the marking criteria – the ones who got 70 or above or 60 and above are the ones that demonstrate well developed CT skills. Usually on the MAIE course, tutors give really good feedback, and then it's the students choice, responsibility to read the feedback and then talk to the marker or the tutor and ask them to explain what you mean by this and what should I do. I've been teaching on the MAIE course for 4 or 5 years. So far only 2 people came back to me and challenged me on my feedback. Which isn't great

Interviewer: Talking about feedback, I interviewed some students and 3 or 4 of them said 'I found …' actually 2 failed in doing their research methods and resubmission time is one week before I interviewed them I asked them this question – 'how do you find your feedback - is it useful to help develop CT skills or not?' The answer is not helpful. I asked why. They told me its too general. They told me 'I have to resubmit but I don't know where to start'. They say 'this is too general'. So then I challenged them, and asked them to show me the feedback. After I told them, 'for me – this is very specific, this tells you what things you are short of, and which part you didn't do in the right way' So I explained it in Chinese for one feedback sheet. It says 'where are your research questions?' I asked her to show me, and she explained she had written parts separately and then attached together without looking through. So I said the marker had given this advice on where are the research questions, so this is very specific guidance. But I think some of them don't understand, and they chose to discuss with their peers, with students they live together with, but they tend not to come to lecturers

Interviewee: so this situation is almost like a barrier and its difficult to figure out what you can do. I think its quite a good exercise you did in terms of your own research, and also helping them understand the feedback from the tutor. So yes I think there are problems and issues students face in terms of what to do with the feedback, so probably is to do with maybe the language, academics tend to write in a particular way, and they can look like a research paper, students may struggle to understand academic texts, the feedback is written in a way they find difficult to understand, so that could be one. I think its interesting that you say they choose to talk to their peers and not to the tutor. This one of the things we should really emphasise. They should talk to the marker and the tutor. They are flexible and don't mind explaining. So the 2 students that I mentioned (who challenged the feedback) they were not from China, and they actually did quite well on the course. These were the students who got 70, and wanted to know why they didn't get 80, so sometimes the ones who engage with feedback are the ones who do very well on the course, so they know what to do and they have very well developed skills. Feedback is a research area in Higher education as well – what can we do to increase their engagement with feedback. Sometimes people will use digital media, will use a podcast to record the feedback rather than write it

Interviewer: I also think the attitudes towards feedback. The feedback comes together with the mark. If they see the mark ‘oh, above 50’ then they won’t bother to look at the feedback again. This is one part related with attitudes, and also these students choose to talk with their friends, their peers, and they don’t want to talk with their lecturers, markers – do they just feel shy? Or language ability or this kind of thing

Interviewee: In fact there was one student who failed her dissertation a few years ago, she was very reluctant to come to tutorials, then she failed and then she came to the tutorial and she brought the first markers feedback and my feedback and I explained the reason why she had failed, and I said I wish you came to more tutorials, you are entitled to tutorials, and she was a student who hardly responded to my emails either, and I asked why, and her response was that back home, we don’t normally communicate with tutors by email, and I asked what do you do? And she said we don’t initiate email, so asked what do you do if you have any questions.
Interviewer: Was she from China?

Interviewee: Yes. She said when you have questions you can go to see a tutor, son you don’t need to make an appointment, so you just knock on the door and ask the question or you can talk in the corridor. I think there is a cultural difference

Interviewer: Like you said – not using email, this is something you know I want to, I explored in my research – after I got my ethical approval my supervisor said the way to contact your research participants is to send emails. I sent emails to these students

Interviewee: None of them replied

Interviewer: None of them replied. Then I used social media which is really popular in China I used Wechat which is the largest user and I went to their group and that’s fine – I got the research participants and they replied through Wechat. They are more likely to have Chinese community They gave me their telephone number and I tried several times to call them and they didn’t answer so each time I contact them I need to go through Wechat to say shall we arrange a time to do interview. If you send them email they wont reply. They only check email for something really serious with their assignment. Other things they just ignore. I can use email to contact lecturers, but Chinese international students tend to use Wechat.
I think maybe you already answered this question – how do you use the marking criteria to inform your formative feedback to improve their CT in their assessments

Interviewee: I use the marking criteria in their study guides which I think you have seen. When you are writing an assignment they often require the use of literature, demonstrating CT by when you are using literature and writing, summarising and using the sources, demonstrating whether students have looked at the authenticity of those sources. You can find journal articles that are reporting research and claiming things that

are based on evidence that is not adequate, and how they refer to the work, and whether they show originality, not only summarising but also critiquing, so interpreting what is said and trying to bring their own viewpoints based on the literature and demonstrate the skills of someone who is doing serious research. One of the things is the limitation of time you have for marking. You have a certain number of hours allocated, and a certain number of hours for tutorials. The time for marking is usually not enough. There are different approaches. What I do is read the work and make comments on the left hand side and where possible I edit as well, so that they should hopefully understand how they should be writing and then identify where they show passive acceptance, where they should be summarising and where they should be critical. Then I write the feedback sheet, so they have in-text comments and feedback sheet. Then I make a judgement of what is the appropriate level of mark. Then I will write formative feedback especially for early stages of assignments, what they should be doing to improve their writing. I sometimes recommend some other sources and tell them I am happy to talk about this.

Interviewer: How do you enable engagement in CT in the classroom activities?

Interviewee: Generally through group work – it can be quite limited. I do one session on contemporary issues and other sessions on innovational reform. I give them work to read on e-books before the lesson and this is one way for them to have independent enquiry. Also all of the content is on e-book, so they read and come to the class prepared. Then I introduce the learning outcomes and I get them to work in groups and then they will report their findings, so I have 2 or 3 group activities, each in time is ten minutes or so the I will introduce something new. And in the same way in the innovation and reform sessions I teach project based learning. So the project based approach is to develop student critical thinking anyway. So here also I use an ebook . They engage with their project based learning activity on their own and then they present their findings. We use the same approach for the rest of the module as well. So its through those activities and the actual approach to teaching as well.

Interviewer: Just now you said you give them ebooks and you ask them to read then ask them to give their presentations. How do you approach and engage with feedback on their presentations to encourage them to discuss, evaluate and reflect on their development of CT?

Interviewee: Generally to ask them to discuss the activity they have done, and the other people will have a task to identify 2 or 3 positive things, something nice about the work, and then to identify 2 or 3 gaps, areas where they can improve, so its about giving them some kind of framework because I think CT requires some help to develop. But also it’s a course, teachers are involved in teaching, so it depends how much that approach is embedded in the whole program as well. I think you can consider this after you have interviewed other lecturers on the course, how much they do activities that encourage their writing skills, being able to stand on their own ground and use evidence to develop their argument and say something new

Interviewer: Next question. How do you think CT writing skills might be applied in your students professional lives, particularly on returning to China – most of them will got to basic education either as a teacher or in an institution related with education. Maybe only a few will go to high education. So in HE we not only give students content knowledge, we also give them transferable skills, so how do you think CT writing skills might be applied in your students professional lives

Interviewee: So what this MA course, or other such courses do is provide the students with some tools and frameworks and give them new perspectives and ways of thinking about education and about their work. So it is actually for the students, when they go back to work, to apply. But I think if we embed the philosophy into their thinking then I think people will take it forward. So in China and other countries there is increased awareness of CT, evaluation and being able to do their own stuff and develop different educational approaches. So I think even in basic education CT skills are an important component, and the lack of it is a reason why we don't see much of it when people come to do masters degrees. So as I said earlier CT skills is basic human nature but what happens is we lose it the way we receive our basic education. Have you listened to Ken Robinson's videos? He is someone who is big on CT or creativity. He says as we grow older the CT skills or creativity goes down and when we learn and go to school and we lose the thinking (?). It might be worth watching some of his videos. So his argument is that it is something that should be in the education system anyway even in basic education as well

Interviewer: I know this is one of your objectives, to teach CT, that they can apply this to their future career in China. Interviewed some students and they told me because of some problems in current educational system in basic education everything is around the entrance examination into universities and they told me it will be really challenging and difficult for them to apply CT in their future career, and some said if I am a teacher in the future maybe I can use different teaching methodology towards my own students, but it is very difficult and challenging for me to ask questions toward the current education system. How do you think about this?

Interviewee: So in China you have started a basic education curriculum reform a few years ago, right? And the purpose is, I'm sure CT skills and objectivity is one of the objectives

Interviewer: I think in the last 5 years some scholars began to give this thing, but before – I was an English teacher before I came here, and for marking criteria we don't pay attention to CT skills

Interviewee: Why?

Interviewer: Because that was not in the curriculum

Interviewee: Maybe the University exam – Gaokao - could be a barrier – its difficult implementing something by an individual teacher or even a school. One of your classmates, Leo, is doing his research on Head Teachers in China and its to do with the school-based curriculum – I remember reading somewhere that there are some innovations going on but this kind of things, exams, is difficult

Interviewer: Yeah yeah yeah really difficult. They may say, because I also taught in high school for several years – they may say, like a movement, we need to put this kind of thing, like some observers come, we need to show them we are doing this, but the main thing if there are no observers, we just focus on Gaokao.

Interviewee: Exactly. It is usually difficult to implement educational reforms. Even in the UK if you bring something new there is a lot of resistance for whatever reason and you need think about the political context as well, the cultural context, the kind of education system that's going on in China over thousands of years and all of that will have an impact on how much of what students learn here, and when they go back to China whether they can implement something. But I think changes can happen, one of the things – the innovative nature of Head teachers perhaps, where are you from in China?

Interviewer: I'm from East of China – actually not far from Shanghai - express train one hour – another province in the East

Interviewee: The Beijing normal University has a school called the affiliated school of Beijing normal university and I went to that school when I went to China in May, and I can show you I was actually quite surprised when I saw some things that they do. Before going to university, you studied 2 years, right, in school?

Interviewer: High school education in China is divided into Junior 3 years and senior 3 years

Interviewee: 3 years? OK so what they have done is the first 2 years – (shows paper) this is the entrance to the school, and all of these are created by students, this is an exhibition kind of area, high school students , so the first 2 years, the students can choose whatever they want to study, and the teachers follow the curriculum loosely but not only to sit exams, its mainly to create things. So thought creation of these objects, this is project based learning so the students learn th topic or the content but in a different way

Interviewer: Do you think this is a state owned school or international school?

Interviewee: This is a state owned school but its more like an experimental school. Its connected to the link to the Beijing normal university so therefore the university has some kind of an influence on what they do. But when I asked my colleague she said that its mainly down to the head teacher because 10 or 12 years ago the head teacher made a decision that this is what the school is going to do and its how they are going to teach. And

school does not have uniform and teachers do not have uniform either. I saw some teachers wearing shorts – it was summer so that was OK but quite casual and then if you are a teacher, then you have a dedicated classroom and you have the freedom to change, decorate, how you want to and then you have a small desk and that's your work area and the children come to your classroom and if you teach drama, or physics, when you finish your class the students will go to the next lesson to a different class

Interviewer: I think this is something like related with the education system here

Interviewee: Yeah yeah I think they probably borrowed some ideas inspired by these as well and there is a tool box to remind you of the time, and all of these things were produced by students. And I saw 1 boy and 1 girl and they were sitting doing something on the computer and later on they were running cars / cards? And they were learning programming and they were preparing for an exam outside the exhibition area and these are the tools students can use and this is the entrance (shows)and the school is divided into these houses

Interviewer: Yes I saw the name of the school – this school has a really close relationship with Beijing normal university and this is a good experimental way

Interviewee: Its called an experimental school

Interviewer: This may happen in Beijing or Shanghai, but I'm doubting this will happen in other parts of the country.

Interviewee: Yeah

Interviewer: I don't know if you know this, but if you are in Beijing or Shanghai and want to go to university, difficulties are much less than other parts of China, because these cities have lots of universities. They give priorities to local students. The exam is the same, but students studying in Beijing and students studying in different areas, their mark is so different. So this kind of experimental school I think got some idea from western education, so because they have a close relationship with Beijing normal university they can have this criteria to accept students, but for students in other areas that wont work
Interviewee: So its not something you can actually replicate elsewhere. But what I would say is a place like that, the Head teacher seems to be an influential figure. So if you think about what an individual teacher can do, it is probably quite limited, but if the philosophy is well absorbed or understood, then they can make small changes to the way they deal with children and I think that will have a long term effect even if they do something right or something small. One of the previous MA students who did the course – Grace gathered some testimonials from previous students and those who had completed said how to become a critical thinker was one of the things they actually valued – to be able to think like a researcher

Interviewer: One question from my interviews with students – I'm planning to do 3 rounds of interviews – the 3rd round I haven't started because I know they will had in their final dissertation at the beginning of September, and I intend to do the final time late July or August. Did 2 rounds and I wanted students to feel relaxed to talk to me so I told them you can choose to use Chinese or English. Until now all of them chose Chinese. I asked them 'what do you think of the relationship between language ability and CT?' Their answer is they can think critically, they don't think there is a lot of relationship between CT and language ability , but writing in a second language is related with language ability, we can understand this because writing in a second language is not so easy as writing I a first language. What do you think about writing ability with academic writing in English? To write critically, some students say has a different writing style

Interviewee: I think there are several layers of difficulties or challenges. One layer could be how the style of writing that is expected, and there are several aspects to style of writing. One aspect might be that what a marker in the UK would expect a student to write the sequence of ideas

Interviewer: Yes I read an article written by Kaplan which is about rhetoric – people in the UK think and write in a linear way – I give my ideas, then put evidence – like making a list. But for people from Asia, from China, he said will think in a circular way and write in a circular way. What do you think about this?

Interviewee: Yes they talk about the background then come to the point a little later, so that could be one barrier perhaps because I am not sure how this is working when you are actually writing

Interviewer: And students told me, they can think, and maybe write in a quite critical way, but talking about writing in English, because they are sometimes some of their language ability is not that great and they tend to express their ideas in a very simple way

Interviewee: Yes – I think writing in a simple way is OK, so overcoming the first challenge, the sequencing of how you write. I think another challenge is when students learn about what you call academic writing, there probably is a misinterpretation of what is expected . A lot of time people write using the passive voice, and being afraid to use the word 'I' and that kind of thing. So perhaps their academic writing – there may be a problem with that as well. So with all of these difficulties, when you try to write it can be quite a challenging exercise. So, I think there is an issue with the language ability and also the amount of time people are spending on practicing it. This could be limited as well, if people write and read a lot and practice then people can develop. So people coming from a particular background – one of the things I notice now, my own observation, lets say for example Chinese students and this applies to Saudi Arabian, Indian, everywhere, I'm talking about students coming from a particular country – because they tend to be together all of the time and they feel comfortable in that community as well and there's nothing wrong with it but it means the development of communication including writing is

quite limited. More limited that a long time ago when I did mu masters – there was no media, nothing like wechat so your communication was supposed to be in English and then you are exposed to other forms of communication including English as well. Now you can survive in England

Interviewer: Just living in your own society

Interviewee: So the wechat is all in Chinese as well. Even small texts are in Chinese – and some people use Google translate as well. They told me they write in Chinese and translate into English as well. Not only Chinese – students from other countries as well.

Interviewer: So we can see that academic writing in a second language, towards Chinese students, like is a mixture, like we say writing style, rhetoric, language ability, maybe thinking style,

Interviewee: But I think if you interview the students who have done quite well on the course, I can think of someone who completed the course and went to do a PhD in IOE and she started a new Chinese research association as well, and I think now she is back in China. There were some examples of student who didn't really have a problem – they were more or less coming from a different background – maybe they are the outliers, not the majority, but there are people who were developing their CT and writing skills very well. I agree with what the students say that they can think critically – that is true – I think everyone can think critically

Interviewer: Most of the Chinese international students studying MAIE went to Pre-sessional course – they told me they think pre-sessional course is more useful than their main course in developing their CT

Interviewee: I think if you speak to Grace, there is something in her data that the students who have done the pre-sessional course because they get this exposure to CT
Interviewer: Ant they know how to write academic writing

Interviewee: So although they are trying to take a test that is equivalent to IELTS, the PSE seems to have a component that is the development of CT skills and critical writing so yeah I think that probably is true. Although sometimes people coming from pre-sessional course say you should write passive voice, not use 'I', that kind of thing so I'm not sure if that is true or not. Even PhD students, they have several years before they begin to use the word 'I'.

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