

**PROBLEMATIZING THE CRITICAL THINKING CONCEPT:
PERSPECTIVES OF CHINESE UNDERGRADUATE STUDENTS
AND THEIR U.S. UNIVERSITY FACULTY**

by

Lei Chen

A dissertation submitted to the Faculty of the University of Delaware in partial
fulfillment of the requirements for the degree of Doctor of Philosophy in Education

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ABSTRACT

This qualitative study examined reflections of 12 Chinese students who studied in a U.S. college, and 10 of their U.S. faculty in terms of their conceptualization of critical thinking. Throughout the study, a situated cognitive framework was applied to analyze the interview data and explore the concept of critical thinking.

The participants of this study were asked to explicitly define critical thinking, and to assess the importance of critical thinking to students' learning and students' lives. The study also explored whether and how critical thinking was related to some of the challenges that the Chinese students faced as students studying abroad in the U.S.

The results showed that the definitions of critical thinking provided by the U.S. faculty and Chinese students were embedded in different contexts. The professors were more likely to define critical thinking as universal thinking skills embedded in certain disciplines. The Chinese students were more likely to contextualize critical thinking in their study abroad experiences, as well as in the purpose of activities, and in their future jobs. The U.S. faculty and Chinese students also assessed the importance of critical thinking in this study. Generally speaking, U.S. faculty attached more importance to critical thinking than the Chinese students. Some of the Chinese students regarded universal critical thinking skill as not transferable to their work and their life, and hence, not that important. Finally, U.S. faculty and Chinese students reflected that attributing some of the challenges that Chinese students faced while studying abroad to critical thinking might be problematic. Chinese students'

descriptions of the challenges that they faced in Western university were not necessarily related to critical thinking. Those descriptions tend to focus on whether it was safe to express themselves in class, whether their voices and experiences were valued in the class community, whether they understood the interactional patterns present in a U.S. university and their English language proficiency.

Examining the concept of critical thinking through Chinese students' perspectives and experiences is significant to the field of international education for several reasons. To start, it problematizes critical thinking concept as a standard that is used to measure students' skills and abilities. The study also demonstrates conceptualizations of critical thinking in ways that consider Chinese students' social, cultural, and educational backgrounds instead of in ways that focus on deficits of Chinese students while they study abroad in Western countries. Further, this study is informative because the challenges that Chinese students faced in this study might be faced by other Chinese students who are studying abroad. The U.S. faculty and Chinese students' reflections on what helped Chinese student conquer their difficulties might be helpful for teachers and researchers of Chinese students. Finally, by interviewing Chinese students, this study incorporated Chinese students' voices in studies that consider the role of critical thinking.

Chapter 1

INTRODUCTION

In recent years the increased economic and cultural exchange between China and Western countries as well as the booming Chinese economy have led to a rapidly increasing number of Chinese students seeking educational opportunities outside of China. Many of these students, mainly from middle- and upper-income families, attend universities in the United States. According to the Institute of International Education (IIE), during the 2014-2015 academic year 304,040 Chinese students studied in the United States, 10.8% more than in the 2013-2014 academic year. This was the sixth year straight in which China was the leading country of origin for international students in the United States (IIE 2014). As the number of Chinese students studying abroad increased, numerous studies were conducted to better understand Chinese students, including their motivations and goals for studying abroad (Chang et al., 2011; Zhou et al., 2012), learning patterns (Kennedy, 2002; Watkins & Biggs, 1996; Zhou et al., 2005), adaptation and development in universities abroad, and various other issues (Heng, 2016; Ramburuth & McCormick, 2001; Zhou, 2008).

Because of the growing numbers of Chinese students studying in Western universities, there is a need for studies to examine their academic experiences and provide insight that can help both the students and their professors to address their particular needs. However, many of those studies tend to take a deficit perspective of the Chinese students by examining what the Chinese students need to do and

attributing their challenges to Chinese cultural perspectives and practices; their cultural background is thus constructed as an obstacle and burden to their success in Western universities (Cho, Roberts, & Roberts 2008; Kingston & Forland 2008; Wang & Shan 2007). For instance, collectivist Chinese cultural orientations that may not prioritize the expression of personal opinions is seen as a barrier to students' adaptation to Western classroom discussion practices which encourage individual opinions (Gu, 2008; Heng, 2016; Wu, 2015). Other challenges that researchers have highlighted as common to Chinese students include: struggling with learner centered approach as their educational experiences in China tend not to ask for the students' perspectives (Kingston & Forland, 2008); relying excessively on rote-learning methods (Paton, 2005); and not being able to think as divergently as American students (Heng, 2016).

Another common deficit oriented theme in research and public discourse about Chinese students is the idea that Chinese students' difficulties in U.S. universities are due to Chinese students' lack of experience with critical thinking before they study abroad (Dong, 2015; Durkin, 2008; Kettle & Luke, 2013; Paton, 2005; Turner, 2006). According to Gu (2008), Swagler & Ellis (2003), Turner (2006), and Wu (2015), Chinese students faced consistent difficulties in understanding Western patterns of thinking and learning in U.S. universities that could not be explained by simple language differences. Thus, these authors discussed critical thinking as one possible explanation for the challenges that Chinese students faced.

Other studies, however, concluded that language differences, understanding of Western educational expectations, and different patterns of class participation were the barriers for some Chinese students to achieve success in Western universities, rather

than thinking differences (Durkin, 2008; Kettle & Luke, 2013; Paton, 2005; Yan & Berliner, 2009).

This dissertation addressed some of the challenges that Chinese students faced while studying abroad by examining how and whether such challenges were associated with Chinese students' lack of critical thinking. I became interested in this project as I observed this contention in my own personal experience; specifically, I observed the idea that "Chinese students lack critical thinking" being circulated among professors in Western universities. One of my advisors told me that when he met a multidisciplinary group of professors from New Zealand at an informal party, the first question he heard was, "Do you have Chinese graduate students (in your U.S. university and in your classes and advisement)? Do you find them lacking critical thinking?"

The contention that Chinese students are ill-prepared in terms of critical thinking when they come to study abroad can also be found in studies that examine Chinese students' reflections of their studying abroad experiences (Heng, 2015; Kettle & Luke, 2013). For instance, the following passage is a quote in Kettle & Luke (2013) from a Chinese student, contrasting the emphasis of Chinese education with Australian education and suggesting that Australian education places more emphasis on student initiated questioning and skepticism of others' opinions:

I think back at home [in China] we learn to be a good student but here [in Australia] you are learning to be [a] thinker. You need to learn to be more critical [in Australia]. You need to question more. Reality is very complex and if we only learn to remember something or to believe what someone is saying, it is only one way of life. (Kettle & Luke, 2013, p.111).

From the Chinese student's perspectives, the Australian college instructors encouraged the student to be "more critical" by asking more questions. The Chinese educational experiences failed to nurture this inquisitive habit compared to Western universities. As this example shows, the Chinese students' social, cultural, and educational backgrounds were regarded as problematic by some of the literature on Chinese students' critical thinking in Western universities.

Educational studies that examine critical thinking in college education also presuppose that Chinese students might lack critical thinking or demonstrate a different kind of critical thinking than Western students. Davies & Barnett (2015), explain that one of the reasons for compiling a handbook of studies about critical thinking in higher education around the world was the assumption that critical thinking taught in Chinese contexts might be different than in Western contexts and thus, worthy of special attention. However, exactly how to consider the Chinese social, cultural, educational and historical contexts in terms of critical thinking is still debated. There are few educational studies that consider how Chinese students' social, cultural, historical and educational backgrounds may serve as assets to their success in Western universities. This dissertation study is designed to contribute to this gap in academic literature.

As I started to examine Chinese students' studying abroad experiences and its connection to the concept of critical thinking, I found that the critical thinking concept itself is disputed and complex. For instance, there is no single skill or a method of thinking that can be named critical thinking as agreed upon by all scholars (Moore,

2013). Instead, critical thinking involves a number of cognitive skills, personal traits, attitudes, and educational concepts (Atkinson, 1997). Critical thinking has been defined in a variety of ways: as an educational ideal (Arum & Roksa, 2011), a set of cognitive skills (Ennis, 1996), the disposition to use certain thinking skills (Facione, 1990), a social practice (Atkinson, 1997), as criteria for evaluating students' writing, (Fox, 1994) and many other ways.

Following, I provide an example from mass media to demonstrate how Chinese students' critical thinking, or lack thereof, is a particularly popular concept; however, the definitions of critical thinking are unclear. In August of 2015, an Australian news article went viral on Weibo, a Twitter-style service in China, especially among educators and parents. The article¹ reported that:

About 37 per cent of the more than 1,200 students studying the Critical Thinking in Business (BUSS5000) course at the university's business school were given a failing grade after the first semester...Foreign students, many of them Chinese, made up the majority of students who failed. Second-year student Jinyuan Li, who failed the BUSS6000 unit, said the course was too subjective: 'In the exam, all the questions were open-ended, but they (the faculty) had very limited marking criteria on their marking guide. (Griffits, 2015)

Many of the comments posted about the news article were from Chinese parents and educators. A common critique was that Chinese education inadequately prepares students for higher education in the West, particularly with respect to critical thinking. Others, however, thought the Australian university discriminated against foreign

¹ The article was originally in English

students by giving them exams with vague grading criteria². I found that this news article raised questions about both the educational and cultural backgrounds of Chinese students and the critical thinking concept itself. For example, did the exam really demonstrate Chinese students' lack of critical thinking in this Australian university? Is critical thinking a concept with clear or vague measurement criteria? And furthermore is the critical thinking concept only vague to the Chinese students or all students?

To sum up, as I prepared for and conducted this study of Chinese students' experiences, I found that the critical thinking concept itself needed to be explored to uncover some assumptions underlining the concept. At the same time, in my personal experiences and in real life situations, the critical thinking concept was associated with some of the challenges that Chinese students faced in Western universities according to U.S. faculty and educational literature. Therefore, I found it is important to explore the connections between how critical thinking is discussed in Western universities (the discourse of critical thinking in Western universities) and Chinese students' experiences in Western universities. I do not provide a definition of critical thinking in this study; instead, I provide the research participants' definitions of critical thinking and interpreted their definitions of critical thinking through their descriptions of teaching experiences and learning experiences.

² <http://learning.sohu.com/20150825/n419721761.shtml>

To examine whether and how critical thinking concepts are connected to Chinese students' studying abroad experiences while taking into consideration the variety of ways critical thinking was defined by the participants, this study draws from the situated cognition perspective. Situated cognition emphasizes that cognition is shaped by context and challenges the traditional view that thinking skills, once acquired, can be transferred to various contexts (Roth & Jornet, 2013). According to the situated cognition perspective, the social, cultural, educational, and interpersonal contexts of an activity affect the cognition involved. Therefore, the situated cognition concept offered a lens to examine the critical thinking concept as embedded in the Chinese students' social, cultural, and educational backgrounds. By centering on Chinese students' perspectives in the analysis, this project aims to move away from deficit perspectives on Chinese students. Furthermore, this study seeks to reveal what may be masked beneath explanations that situate Chinese students' challenges in a lack of critical thinking. In the literature review section, I explain in details what aspects of contexts this study focuses on.

This project uses a few terms related to "critical thinking." The phrases *critical thinking skills* and *critical thinking dispositions* refer to critical thinking as abstract thinking skills and the disposition to use those skills. The phrase *critical thinking concepts* refers to critical thinking defined by certain literature or participants, and thus, it is discourse rather than a specified skill. I coined the phrase *contextualized critical thinking* to discuss critical thinking that considers a specific context: for instance, *critical thinking contextualized in Chinese students' class participation*. This

term, *contextualized critical thinking*, emphasized situated cognition perspectives that regards thinking to be shaped by the contexts.

In this project, I conducted qualitative interviews with Chinese students and their U.S. faculty to discuss the Chinese students' educational experiences, as well as to discuss the extent to which the critical thinking concept might be related to the Chinese students' experiences. Specifically, I examined U.S. faculty and Chinese students' perceptions and conceptualizations of critical thinking. This study also sheds light on the educational practices that might be conducive to enriching Chinese students' experiences in Western universities.

Overall, this project explores what the critical thinking concept might reveal or mask and this study includes the perspectives of U.S. faculty and Chinese students to better understand their perceptions and experiences of critical thinking as shaped by culture and education. Is the notion that Chinese students lack critical thinking simply a stereotype? Lee (2015) wrote that there are two ways to explore stereotypes. The first way is to test the stereotype to see if it is true or not. The problem with this approach is that you will always find people who fit the stereotype and people who do not. Instead of considering this as an either-or question, Lee provided the second way: to study the consequences of the stereotype. In this dissertation, I explore a third way: problematizing and deconstructing the stereotypes per se.

1.1 Research Questions

This study addressed the following three research questions:

1. How do Chinese students who are studying in the U.S. and their U.S. faculty explicitly define critical thinking?
2. How do Chinese students who are studying in the U.S. and their U.S. faculty perceive the importance of critical thinking to Chinese students' academic experiences?
3. How do Chinese students who are studying in the U.S. and their U.S. faculty implicitly conceptualize critical thinking through their discussions of the challenges faced in Western universities?

The first research question in this project aims to examine the critical thinking concept through U.S. faculty and Chinese students' explicit descriptions. Specifically, I am interested in understanding the principal ways in which critical thinking is conceptualized by the U.S. professors and Chinese students, as well as whether and how their conceptualizations are different.

The second research question aims to examine Chinese students' and their U.S. faculty's discussions of the importance of critical thinking. Some literature has regarded developing student critical thinking as one of the goals of a college education (Davie & Barlett, 2015; Arum & Roksa, 2011); do the U.S. faculty and Chinese students share this perspective?

The third research question aims to examine how Chinese students and their U.S. faculty discuss the challenges that Chinese students face in Western universities. This includes whether and how such challenges are connected to the faculty and student definitions of critical thinking. Do the faculty and the students have similar or

different perceptions about what is challenging? How to understand critical thinking as situated in the challenges Chinese students face in their study abroad experiences?

1.2 Overview

In this study, I first review literature on definitions of critical thinking by analyzing how each definition considers or reflects a contextual understanding. I suggest that applying a pre-determined and universal critical thinking concept ignores the contexts in which thinking takes place. Therefore, I highlight one of the specific sociocultural theories, situated cognition, as a helpful analytical tool in this study. I then review current literature on Chinese students in Western countries. Specifically, I discuss how critical thinking situated in Chinese students' educational experiences considers culture and educational contexts, students' voices, and their negotiation of cultural differences.

Next, I present the method of the study, which features qualitative interviews with 10 U.S. faculty members and 12 Chinese students studying in a U.S. university. I describe how I used grounded theory approaches to generate concepts and themes concerning critical thinking in the faculty and student interviews.

In the result sections, I present explicit definitions of critical thinking given by Chinese students and their U.S. faculty. I explore U.S. faculty members' and Chinese students' perspectives on the importance of critical thinking, as well as whether and how the critical thinking concept needs to be understood as situated in the Chinese students' specific social, cultural, educational, interactional, and linguistic contexts.

This study is important for the teachers and educators to understand the Chinese students' perspectives in terms of some of the difficulties they faced, what kinds of educational practices are helpful for them to conquer such difficulties, and the Chinese students' conceptualization of critical thinking. This study also proposes ways that instructors of Chinese students can reflect on their assumptions about critical thinking concept particularly in relation to Chinese students' social and cultural backgrounds. Based on my findings, a few suggestions are made to facilitate Chinese student experiences studying in Western universities. For instance, valuing Chinese student voices and experiences is essential to helping them join classroom discussions and improve writing proficiency. Finally, this study also has implications for studies on the critical thinking concept. The study proposes that is helpful to embed critical thinking in students' social and cultural backgrounds instead of regarding it as a decontextualized cognitive skill.

Chapter 2

ANALYTICAL FRAMEWORK AND LITERATURE REVIEW

In this section, I first introduce my analytical framework, situated cognition. Then, I review the problems and complexities involved in defining critical thinking by providing a few common ways of defining critical thinking both as higher order thinking skills and dispositions; and in contextualized ways, as political engagement, and educational ideal. I also introduce literature that situates critical thinking in Chinese students' studying abroad experiences. This literature review does not contain a section on teaching critical thinking in college as this study does not observe or explore how professors teach critical thinking in their classes. Rather, this study and the accompanying analysis focuses on conceptualizations of critical thinking by the interviewed students and professors. Thus, the literature review focuses on three aspects: situated cognition framework, definitions of critical thinking, and critical thinking as situated in Chinese students' experiences.

2.1 Analytical Framework: Situated Cognition Perspective of Critical Thinking

In order to explore critical thinking as situated in Chinese students' specific social, cultural, and educational contexts, I adopted a situated cognition perspective in this project. Situated cognition is built on the assumption that skills are embedded in the contextual environments in which they are used (Greeno et al., 1993). Hence,

examining critical thinking involves understanding the activity in which critical thinking is applied (Brown, Collins, & Duguid, 1989).

According to Roth & Jornet (2013), "...the situated cognition hypothesis fundamentally challenges traditional notions of the boundaries and, therefore, the locus of cognition" (p.464). Unlike cognitive perspectives that consider social or cultural contexts as variables of studies, the situated cognition approach suggests that thinking happens in the interactions between human minds and the contexts where they are situated. Therefore, the context shapes the thinking processes. In other words, situated cognition does not view thinking or learning as abstracted or extracted from context, but rather as intrinsically shaped by the context in which thinking takes place. *Whom* is thinking about *what* in *which* situation intrinsically shapes the thinking process itself.

Specifically, the situated cognition framework asserts that:

1. Cognition is situated within physical environment.

For instance, the artifacts involved in the activity – a hammer, a computer software, or other tools – may shape the activity.

2. Cognition is situated in social contexts.

For instance, students' familial economic backgrounds may affect their attitude and approach to education.

3. Cognition is enacted; the purpose of the activity characterizes human behavior.

For instance, the students who answered a known-answer-question might think about the teacher's expectations rather than the question itself.

4. Language-use and material practices are relevant for the distribution of cognition.

For instance, whether students speak the same language/dialect as the teacher might influence the teacher's opinions and perceptions of the students.

For example, in the case of a competent carpenter, hammering is understood to be part of a situated, embodied practice of "hammering a nail in the wall in order to hang a picture." The act of hammering is shaped by the physical contexts – the shape of the nail and the wall – as well as the purpose – hanging a picture (Roth & Jornet, 2013, p465). Empirical studies have provided some evidences for situated cognition theories: a study found that children could do mathematics to sell homemade goods on the street, yet found it difficult to do the same mathematic skills in the school setting (Lave, 1988). The implication of such studies is that the social and cultural contexts when doing mathematics shaped the children's cognition.

In situated cognition, thinking, analyzing, making judgments, and problem solving are affected by interactions with peers, institutional settings, cultural norms, and other aspects of the contexts in which the thinking takes place (Greeno et al., 1993). In practice, problem solving is not based on logical reasoning alone, but takes into account resource seeking, discussions with other people, and even the ability to

circumvent the problem. For instance, when doctors are making complex decisions, joint interpretation with colleagues and postponing the diagnosis decision are used as strategies to facilitate decision making (Alby, Zuccheromaglio & Baruzzo, 2015).

An example of the application of situated cognition to an educational study is that of Roth (1996) who examined elementary school students' design projects. Instead of examining individual students' cognition in the design projects, Roth (1996) recognized that "tools, materials, community standards, teacher-set constraints, current state-of-the-design artifacts, individual preferences and past discursive achievements contributed to the emergence of a specific design artifact." Specifically, the design artifacts were examined with regard to their function as "integral aspects of students' cognitive activity during design" and "tools to facilitate negotiating, constructing collective meaning, thinking, and planning in groups" (p.157). Drawing on Roth (1996) and Roth & Jornet's (2013) frameworks of situated cognition, I expected that this dissertation study about Chinese students' critical thinking may not be about critical thinking alone, but rather about "tools, materials, community standards, teacher-set constraints," the students' language, the environments of the class, the university settings, the students' home cultures, and educational experiences.

Criticisms for situated cognition perspectives suggest that cognitive theories have long recognized the importance of contexts and the limitations for transfer (Anderson, Reder et Simon, 1996). The issue of transfer is not a binary paradigm. Rather, there can be no transfer, little transfer or much transfer depending on how the task was taught, the distance of transfer and other aspects of the situation. While I also

believe that the extent to which a skill is contextualized is not binary but on a spectrum, I use situated cognition theory because it vastly increases the connotations of *contexts* that were not previously sufficiently considered in cognitive perspective.

2.1.2 Community of Practices

As part of the situated cognition perspective, Lave (1988) emphasized that learning is a communal process, situated in a community of practices. Thus, a novice is not simply a person who lacks certain skills, but is also a newcomer who needs to negotiate his or her membership within a community of practices. Such conceptualization of learning has also given rise to some of the educational theories that emphasizes learning as participating in the problem-solving or discussions with teachers and more capable peers, including cognitive apprenticeship (Rogoff, 2003), community of learners (Brown and Campione, 1994) and many others. In these theories, learning is imbedded in the activities and practices in which it occurs. According to this perspective, learning to participate in the Western classrooms to demonstrate critical thinking might be an important stepstone for the Chinese students to be successful in Western universities which recognize critical thinking as one of the most important goals of higher education. Thus, this study did not evaluate Chinese or Western college students' critical thinking. Instead, I engaged the Chinese students in descriptions of their college experiences.

Situated cognition theory also recognizes that meanings are constructed within the community of practices instead of given as absolute meanings. Instead of regarding rules and regulations in the community of practices as normative and absolute, situated cognition theory emphasizes how communities make use of shared

rules and facts, and adopts a cultural systems approach through its attention to the rules, norms and beliefs of community (Wilson & Myers, 2000).

2.1.3 Contextualizing Critical Thinking

While some cognitive studies consider how disciplinary contexts affects teaching and learning, those study tend to ignore other social and cultural contexts, for instance, the institutional requirements, the assumptions of Western education and power between teachers and students (Johnston et al, 2011; Willingham, 2007; Szenes, 2015). For instance, Szenes (2015) examined two essays in sociology and business studies both by native speakers, hoping to uncover some underlying assumptions about critical thinking. She found that in both essays, the report of the students' reflections and transformation in field work were rated as demonstration of critical thinking, although the explicitness in describing the reflection differed. Thus, Szenes (2015) contextualized critical thinking in disciplinary contexts. From a situated cognition perspective, the social and cultural contexts of the two essays are: Western college students writing academic papers to fulfil the requirements of a social science course. Therefore, essays of students' self-reflections and transformation might also reflect the assumptions of social science education in Western universities as well as the disciplinary contexts.

In some ways, some cognitive researchers also consider students' cultural backgrounds but not necessarily other power relations in the society. For instance, the Roksa et al. (2016) study examined how racial background related to critical thinking

skills in college education and found substantial differences in the development of critical thinking skills between African American and Caucasian students. The study also indicated that the differences were unrelated to students' academic experiences (e.g. the amount of time they spent learning and exposure to clear, organized instruction) but were related to their experiences with diversity (e.g. do they study with peers or study alone; do they interact with diverse peers). In Roksa, et. al's (2016) study, critical thinking was defined as an analytical skill measured by a standardized test, the Collegiate Assessment of Academic Proficiency (CAAP). From the situated cognition perspective, Roksa, et. al. (2016) ignored the social and cultural contexts of African American students' critical thinking. Research studies show that African American students are disadvantaged in standardized tests due to a lack of attention on how these tests privilege dominant white cultural and linguistic backgrounds and experiences (Scribner & Cole, 1981; Heath, 1983). Therefore, what Roksa et al (2016) had observed as the differences between African American and White students' critical thinking skills, might be interpreted, from a situated cognition perspective, through a lens that considers the context and history of standardized testing and how these disadvantage African American students' in standardized testing.

Scholars of situated cognitive perspective examined the underlying assumptions in the ways critical thinking is defined in the West instead of the skills itself. Atkinson (1997) proposed that critical thinking may be a *social practice*, "the kind of behavior in which an individual is automatically immersed by virtue of being

raised in a particular cultural milieu” (p.73). Some Western learning conventions are taken for granted as being part of critical thinking; for instance, the idea that students should express their opinions as individuals in Western schools. Meanwhile in some Asian cultures, students are taught to value the interests of the group over the interests of themselves as individuals. While Western cultures value the use of language to express one’s thoughts and feelings, Asian cultures emphasize that some thoughts and feelings cannot be expressed by language. While these are generalizations of Western and Asian cultural practices and values, they help to illustrate the ways that critical thinking may be impossible to define without consideration of the cultural context.

Atkinson thereby suggests that critical thinking may be a concept deeply embedded in Western cultural contexts. Chinese students might not understand or readily adapt to the implicit and explicit requirements of critical thinking in Western universities. Vandermensbrugghe (2004) argued that Chinese students need to be explicitly taught about the concept of critical thinking. This is further supported by Johnston et al. (2011), who emphasized that requiring Chinese students to think critically might be problematic because their home cultures might not value critical thinking as much as Western ones.

While I appreciate how Atkinson (1997), Vandermensbrugghe (2004) Johnston et al (2011) and others take Chinese students’ social and cultural contexts into consideration, I wonder if it is justifiable or helpful to regard the Chinese students’ cultural heritage as a burden for their study in Western universities or as the explanation for students’ lack of critical thinking. Gill (2007) examined a cohort of

Chinese international students' adaptation to UK university and pointed out that intercultural adaptation is in itself a process of intercultural learning, which has the potential to transform the Chinese students' understanding of the learning experience, self-knowledge, awareness of the other, and values and worldview.

2.2 Critical Thinking as Universal

In this section, I present definitions of critical thinking that focus more on critical thinking as a higher order thinking skill or a disposition rather than teaching critical thinking. The purpose of reviewing literature of these definitions is not to form my own definitions of critical thinking nor to present a comprehensive review of critical thinking. There are definitions that I left out in this literature review; for instance, critical thinking as argumentative writing (Fox, 1994). The purpose of this section is to explore some of the underlying assumptions of defining critical thinking as higher order thinking skills. Some of such assumptions have implications for teaching, assessing and requiring students to demonstrate critical thinking in education.

2.2.1 Critical Thinking as a Higher Order Thinking Skill

Critical thinking has been defined as a higher order thinking skill – for example, as the ability to analyze, synthesize, and evaluate information – from a few decades ago (Bloom, 1956) until recently (Roksa et al., 2016). From this perspective, critical thinking requires: self-directed reasoning, reflection and deciding what to believe (Ennis, 1993); analyzing and evaluating thinking with a view to improve it (Paul & Elder, 2009); problem finding as well as problem solving (Wineburg, 1998); evaluating evidence or opinions provided by authority figures (Phillips & Bond,

2004); and many other cognitive skills. In 1990, a Delphi project was conducted by the American Philosophical Association to seek a consensus on the definitions of critical thinking (CT) in college level education among educational scholars and experts. In this study, CT was defined as the use of a set of cognitive skills, for instance, analysis, interpretation, inference, explanation, evaluation, and self-regulation to form judgment (Facione, 1990).

Bloom's Taxonomy (Bloom, 1956) of thinking skills was regarded as a framework by many researchers of cognitive perspective for decades (e.g. Davies & Barnett, 2015; Johnston et al., 2011). Bloom ranked a number of cognitive skills on a hierarchy: knowledge, comprehension, application, analysis, synthesis, and evaluation. Knowledge is the simplest and most concrete cognitive domain, while evaluation is the most complex and abstract. The higher order thinking skills in the taxonomy – analysis, synthesis and evaluation – have frequently been cited as critical thinking (Scriven & Paul, 1987). Table 1 contrasts and compares five cognitive perspectives for defining critical thinking from various scholars (Bloom, 1956; Ennis, 1993; McGuiness, 2005; Philips & Bond 2004; Scriven & Paul, 1987; Tsui, 1998). The first column is from Bloom's Taxonomy which was developed in the 1950s and provided a basis for further development of the critical thinking concept. McGuiness (2005) included problem solving as critical thinking; however, talking about problem-solving skills out of context can be vague and abstract (Wegerif, 2015). A number of different skills might be employed to solve a problem.

Philips & Bond (2004) included *making correct inferences* as critical thinking, while Scriven & Paul (1987) included *conceptualization*. In my analysis, these two terms (correct inferences and conceptualization) are still vague. As Atkinson (1997) argued, critical thinking is essentially a group of skills that may lead to a favorable result, but what is contained in the group of skills is still a black box.

These five researchers were chosen because their definitions are widely cited in educational literature (e.g. Burke & Williams, 2008; Duron et al., 2006; Dwyer et al., 2014; Hendricson et al., 2006; Huitt, 1998; Miri et al., 2007; Robson & Moseley, 2005). Furthermore, this table does not exhaust all possible definitions of critical thinking, but demonstrates that critical thinking is often conceptualized as consisting a number of cognitive skills.

Table 1: Five exemplary cognitive conceptualization of critical thinking

Bloom (1956)	McGuiness (2005)	Phillips & Bond (2004), Tsui (1998, 2000, 2002)	Scriven & Paul (1987)	Ennis (1993)
Evaluation	Critical about evidence	Evaluate evidence or authority	Evaluating and gathering information	Judge the quality of an argument Open-minded
Creativity (revised version)	Think flexibly			
Comprehension	Deep understanding		Conceptualization	
Synthesis		Recognize important relationship	Synthesizing	
Analysis		Deduce conclusions	Analyzing	Identify conclusions, reasons, assumptions
Application	Solve problems			Plan experiments and judge experimental design
		Make correct inferences		Draw conclusions with caution Ask clarifying questions

These skill-oriented definitions of critical thinking have been critiqued for using generic terms (Nickerson, 1990 as cited in Atkinson, 1997) and ignoring the contexts in which the thinking takes place (Lave, 1988, Lave & Wenger, 1991; Rogoff, 1990). The thought processes and problem solving skills required in various situations may be quite different. For instance, in the field of History, experts emphasize the students' ability to "find problems" rather than "problem-solving" (Wineburg, 1998). Problem solving in a classroom setting can be different than problem solving in a job. As students doing problem solving might estimate the teachers' intentions, problem solving in a job might involve seeking information elsewhere. Therefore, problem solving through logic thinking might be absent in both situations.

To summarize, conceptualizing critical thinking as universal cognitive thinking skills as analysis, deliberate thinking, evaluation, etc., might not capture a student's experiences in a class as it ignores the contexts that thinking is imbedded in, for instance, social and cultural, educational, disciplinary, and interactional settings of the school.

2.2.2 Critical Thinking as a Disposition

In 1993, soon after the Delphi project, another project seeking consensus among U.S. college educators was conducted for the search and promotion of the critical thinking disposition concept, i.e. student dispositions to use critical thinking concepts. The critical thinking disposition concept recognizes that contexts and motivations are key to critical thinking, as some people may have the capacity for

critical thinking but not the will to use it (Facione, 1993). The educators involved in this project reached the consensus that development of a critical thinking disposition and of critical thinking mutually reinforce each other. The more that students use critical thinking skills, those skills might improve, and the more skillful the students are in using critical thinking, the more likely the students would use such skills. The teaching of critical thinking skills should always include nurturing a critical thinking disposition (Facione, 1990). Following is Facione's definition of a critical thinking disposition:

...habitually inquisitive, well-informed, trustful of reason, open-minded, flexible, fair minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information, reasonable in the selection of criteria, focused in inquiry, and persistent in seeking results which are as precise as the subject and the circumstances of inquiry permit. (Facione, 1990, p.3)

A critical thinking disposition tends to be described by adjectives or descriptions of personal characteristics. For instance, the California Critical Thinking Disposition Index (CCTDI) contains 75 Likert-type items grouped into 8 aspects: inquisitiveness, open-mindedness, systematic, analyticity, truth-seeking, CT (critical thinking), self-confidence, and maturity.

Critical thinking disposition considers students' motivation to think critically. Nevertheless, a critical thinking disposition is still decontextualized in that it assumes using critical thinking is always better than not using critical thinking, for example

making a choice according to empathy or emotional feelings rather than from a critical thinking perspective. This assumption is criticized by the feminist approach to critical thinking (Thayer-Bacon, 1992). Thayer-Bacon wrote that favoring critical thinking (as a cognitive skill) in education might stress the logic thinking process that separates facts from opinions, and the subjects of thinking (the thinker with his or her emotions and feelings) from the objects of thinking. Critical thinking paradigm pursues an authoritative and expert voice, rather than a personalized voice.

Following is one of the survey questions on the CCTDI that can demonstrate how critical thinking disposition values detached thinking. The students were required to rate if they agree with the following statement or not: “If there are four reasons in favor and one against, I’ll go with the four” (p.72). From the researchers’ perspective, four reasons is superior than one reason and a person with critical thinking disposition should objectively go with the four. From my perspective, it is impossible to answer this question without sufficient context. For instance, a person could list a hundred reasons in favor of divorce and one reason to stay in the marriage and it is possible they would stay.

Despite the fact that decontextualized critical thinking skills and dispositions are criticized by some researchers that regard learning and thinking as always situated in context, such perspective is popular among other educational researchers in various disciplines (Bell & Loon, 2015; Halpern, 1999; Kim et al., 2013; Lampert, 2007; Reid & Anderson, 2012; Tsui, 2007).

2.3 Defining Critical Thinking in Contexts

While critical thinking as a higher order thinking skill has been criticized for not considering the contexts in which thinking takes place, several other ways of defining critical thinking were developed concurrently. Specifically, according to the Roth et al. (2013) framework, critical thinking is situated in physical environments, social contexts, the purpose of the activities, language, and other cultural tools.

To demonstrate how critical thinking is situated in specific social and historical contexts, I introduce literature that defined critical thinking as political engagement. Then, I introduce critical thinking in historical and social contexts, defined as an educational ideal. Finally, I introduce literature that examines critical thinking as defined in instructor and student specific contexts.

2.3.1 Critical Thinking Contextualized in Social Context: Political Engagement

Many studies situate critical thinking in the context of citizen education, political engagement (Barnett, 1997; Colby et al., 2010; Guyton, 1988; Glaser, 1942) and critical pedagogy (Burbules, 1993). Thus, critical thinking is not only rational thinking, but also the “competence to participate critically in the communities and social practices of which a person is a member” (Ten Dam & Volman, 2004, p359). However, there are also controversies in terms of whether critical pedagogy can be one of the interpretation of critical thinking.

Ten Dam & Volman (2004) argues that programs emphasizing critical thinking

(as political engagement) should focus on creating an environment that allows students to critically engage with and reflect upon decision making in their own classes, schools, and community. Thus, thinking critically to make decisions or convincing arguments, is situated in the communal, interactional and social contexts of the students as they make decisions for their classes and schools collectively. Critical thinking as political engagement is nurtured as the students discuss how an historical viewpoint can contribute to interpreting stories about a student's own neighborhood and what they can do about it.

This conceptualization of critical thinking can be connected to critical pedagogy if critical thinking is situated in the injustices present in social and political contexts. Thus, both critical thinking and critical pedagogy can regard social change as the goal of education. Both concepts cherish thinking that helps students generate their own world views and challenge teacher authority (Freire, 2000). Enhancing students' critical thinking can hopefully humanize students and make them aware of injustices in society and lead them to action. From this perspective, critical thinking and critical pedagogy share many elements (Burbules, 1993). Thus, thinking critically in social contexts may involve thinking about inequity in society.

There are conflicts between critical pedagogy and the critical thinking concept according to some authors who define critical thinking as rationality and trust of reason (Facione, 1993) and thus, suggest that students should examine society with detached rational thinking. Critical pedagogy, however, emphasizes that instructors and students side with the disadvantaged and poor of society. Thus, there might be

insufficient space available for people to disagree with the conclusions in critical pedagogy (Johnston et al., 2013). In this case, there is controversy in different perspectives of defining critical thinking: critical thinking as trust of reason and critical thinking as social justice.

2.3.2 Critical Thinking Contextualized in Educational Culture

Critical thinking has been assumed to be a positive outcome of education in much educational literature without explanations of what it entails (Davies & Barnett, 2015). It is argued that critical thinking is ‘THE’ goal of education since in today’s society, with the development of internet and an overflow of information, the technology taking over many traditionally labor intensive production processes, it is important that the students develop their critical thinking (Arum & Roksa, 201; Barnett, 1997; Brooke, 2006; Johnston et al., 2011; Howard et al, 2015). In other words, critical thinking is “good thinking” although it is hard to provide detailed description of what exactly it is. Critical thinking is an intrinsic value of education.

Much literature assumes critical thinking to be a positive outcome of teaching that does not need to be examined (Atkinson, 1997). For instance, some authors attribute the origin of critical thinking to Socrates 2500 years ago (Facione, 1998; Burbach et al., 2004). Socratic questioning has been cited as a means to foster students’ critical thinking, since many educators believe that the Socratic Method effectively engages students in rigorous thinking and questioning (Yang et al., 2005; Brooke, 2006). That the Socrates Method facilitates discovery learning by questioning

students, leading students to find the answers themselves, and promoting reflection of students' beliefs and values has been embraced in many recent studies about critical thinking (Burbach et al., 2004). Since the Socratic Method has been regarded as the inheritor of a historic legacy that does not need to be questioned, critical thinking as the goal of Socratic education is not questioned either.

Critical thinking has been discussed as the far-reaching effect of education that prepares students for lifelong learning and employment (Szenes et al., 2015). In another influential study of critical thinking in college, a collegiate learning assessment (CLA) was developed to assess students' "critical thinking, analytical reasoning, problem-solving and writing", general skills which are mentioned in college and university mission statements rather than specific knowledge required for a course or major (Arum & Roska, 2011). However, Arum & Roska seem to assume that although knowledge for a course or major might not transfer to work place, the thinking skills acquired in the courses are applicable to various contexts in students' lives and careers.

2.3.3 Faculty's Conceptualization of Critical Thinking

With the understanding that the concept of critical thinking needs to be situated in contexts and practices, a few studies turn the focus of their studies to exploring how instructors and students define critical thinking (Howe, 2004; Manalo et al., 2015; Moore, 2013; Szenes, 2015). One of the major findings of these studies is that the definitions of critical thinking are varied, growing, and flexible, influenced by the

participants' disciplines, societal and cultural contexts, and their perspectives on education.

Moore (2013) examines conceptualizations of critical thinking through interviews of 17 Australian university professors from three majors: History, Philosophy and Literature. Judging by the variety of ideas and examples the participants provided, Moore (2013) concludes that far from being a “buried” and “ineffable” concept, critical thinking is a very alive and engaging concept. Instead of defining critical thinking by a few decontextualized cognitive terms, the professors in Moore's (2013) study defined critical thinking in at least seven ways: critical thinking as judgment, a skeptical and provisional view of knowledge, a simple originality, a careful and sensitive reading of text, rationality, the adopting of an ethical and activist stance, and self-reflexivity.

In a study by Howe (2004), Canadian and Japanese secondary teachers' conceptions of critical thinking were found via surveys and then compared and contrasted. The result shows that the Canadian teachers tended to define critical thinking using terms characterized as cognitive strategizing, while Japanese teachers tended to define critical thinking using terms of conscientious judgments and intellectual engagement. Howe's study demonstrates that the definitions of critical thinking by practitioners are influenced by cultural contexts. As implied by this study, it seems that the conceptualization of critical thinking could be affected by social and cultural contexts.

Similar to Howe, Manalo et al. (2015) compared definitions of critical thinking in Japanese and Western cultures. Japanese students' conceptualizations of critical thinking in the qualitative interviews were compared with those of American students' (Manalo et al., 2015). Manalo et al. found that compared to the American students, the Japanese students showed hesitation and uncertainty in their definitions of critical thinking. The students' definitions of critical thinking might be shaped by their social and cultural contexts which placed less value on the students' individual thinking.

Barnett (1997) defines critical thinking as a three-tiered model. The first tier is a set of cognitive skills, such as problem solving skills or analytical skills, commonly associated with critical thinking (Ennis, 1987, 2000; Johnston et al., 2011; Jones, 2004; McGuinness, 2005; Paul & Elder, 2009). The second tier involves interchanges, debates, argumentative writing, and other activities situated in the discipline and in the academic culture, for instance, critical thinking as a Western social practice (Atkinson, 1997). The third tier is a "critique" of theories of the world, i.e. critical pedagogy.

Barnett (1997) recognizes the multidimensional nature of critical thinking and attempts to conceptualize critical thinking as a framework that can be applied to various contexts. Barnett's (1997) framework of critical thinking was applied in the Jones (2004) study in which several professors teaching a macroeconomics class in an Australian university discussed their ideas of critical thinking in teaching practice. Jones (2004) also observes that while teaching critical thinking at the first tier (as a set of cognitive skills) is very valuable, this does not extend to students' abilities for more fundamental examinations of the assumptions underpinning the discipline. Jones

(2004) proposed that teaching in higher education should consider how to promote teaching critical thinking at the third tier (“critique” of the theories of the world).

Barnett’s (1997) framework and Jones’ (2004) study acknowledge the important role of context in critical thinking, but I found their examinations of the definitions of critical thinking lacked the voices of students, especially students from a range of cultural backgrounds.

Utilizing a situated cognition framework to examine U.S. faculty members and Chinese students’ perspectives, the current study proposes that the contrast between the levels in the Barnett (1997) and Jones (2004) studies was not only about critical thinking at different levels, but also how critical thinking is situated. The students’ definitions of critical thinking suggest that to promote a more in-depth examination of assumptions in their disciplines and lives, critical thinking needs to be situated in the students’ sociocultural backgrounds.

In conclusion, current educational studies that examine definitions of critical thinking as situated in specific social, cultural, educational, and interactional contexts show that critical thinking can be defined with a variety of concepts, ideas, skills and characteristics beyond higher order thinking skills. However, with a large number of Chinese students studying abroad in Western schools, studies that examine critical thinking as defined by Chinese students are in need. More importantly, Moore (2013), Howe (2004), and Manalo et al. (2015) only examined the participants’ explicit definitions of critical thinking, without considering how the critical thinking concept is connected with the teachers and students’ educational experiences. Next, I present the

literature on Chinese students' studying abroad by focusing on literature that is connected to critical thinking concepts.

2.4 Critical Thinking in Chinese Students' Educational Contexts

Some studies concerning international students situate critical thinking in the context of ESL education and regard critical thinking as a Western practice (Atkinson, 1997; Johnston et al., 2011; Heng, 2016). I have cited some of this literature previously in this study. Overall, those studies argue that the critical thinking concept embedded in the Western academic culture values individualistic thinking, student expressions of ideas, and argumentative writings which may be foreign to ESL students, especially Asian students. Therefore, it is also important to examine how literature about Chinese students studying abroad discusses critical thinking or the lack of critical thinking. Critical thinking is associated with the challenges that Chinese students faced in Western universities in a variety of ways including: as a problem with the ways Chinese student think, as differences of cultural and educational conventions, as the lack of students' voices in academic writing and class participations, and as Chinese students' negotiations of cultural differences.

2.4.1 Problems with Thinking

Critical thinking was cited as an underlying issue of Chinese students' writing difficulties by Turner (2004), Angelova & Riazantseva (1999), Hirvela & Du, (2013), and Li et al. (2012), to give a few examples. In these studies, the problem with writing

is discussed as essentially a problem with skills related to analyzing or synthesizing in writing.

Turner (2004) observed and interviewed Chinese students who were Business and Economics majors in terms of the challenges they faced in academic writing. The Chinese students continuously mentioned difficulties with stylistic issues, while in Turner's observations, the academy required students to demonstrate a certain capacity for analytical and evaluative skills in writing. Thus, Turner concluded that the Chinese students were not aware of the "deeper intellectual rationale" that favored critical examination of issues underlying the surface of "British style" writing (p.21).

Similar to Turner, Angelova & Riazantseva (1999) argued that the Chinese students' writing problems are essentially critical thinking problems. A Chinese student studying in a Western university reported in an interview in Angelova & Riazantseva that she could write a summary, but "to be critical—I don't know." (p.504). Critical thinking is writing that transcends mere summary and description, emphasizing the synthesis of ideas, analysis, and reflection (Angelova & Riazantseva, 1999). In these studies, critical thinking is a skill that, across disciplines and subject matters, allows students to be skeptical and analytical in argumentative writing in Western universities. These skills, however, are described as a deficit for some of the Chinese students whose education in China did not prepare them well in these aspects (Hirvela & Du, 2013; Li et al., 2012).

2.4.2 Cultural and Educational Contexts

Some studies attribute the difficulties that Chinese students experience in argumentative writing and in class participation in Western universities to the different cultural conventions between Asian and Western cultures (Chang et al, 2011; Clark & Gieve, 2006; Li & Casanave, 2012). For instance, Xie (2016) wrote that Chinese students have a different style of making an evidence-based point in argumentative writing that cannot be captured by the Western notion of direct-indirect frameworks of evaluation styles. Hirose (2003) argues that Japanese and Chinese argumentative writing tends to be “bottom-heavy” compared to writing in Western cultures; in China and in Japan, authors tend to wait until the very end of the paper to present their central arguments.

In my analysis, these studies situated critical thinking in the cultural difference between Asian and Western academic cultures. Reasoning and argumentation patterns accepted as normative in society has its specific historical and cultural contexts (Wilson & Myers, 2000). In Western universities, academic writing is often treated as an indicator of students’ critical thinking ability (Arum & Roksa, 2011; Bean, 2011). Unfamiliarity with Western writing conventions might result in Chinese students’ writing being poorly evaluated in Western universities. In this sense, Chinese students’ poor performance in argumentative writing might be interpreted as poor critical thinking while the poor writing might be the result of unfamiliarity with academic conventions (Heng, 2016).

While a major problem of Chinese students' adaptation to Western class is Chinese students' habitual reticence, some of the literature attributes such reticence to cultural backgrounds which did not promote students' critical thinking. For instance, Chinese traditional culture and education do not encourage students to express themselves in public, especially if such expression of ideas draws attention to themselves (Cheng, 2000; Zheng, 2010). There is a Chinese saying: The gun takes the bird which chirps first (枪打出头鸟). If a student raised their hand to say something in the classroom and anything happened as a result to the class, the one that initiated the comment might be at the highest risk to bear the negative consequence (For instance the teacher reprimands him for not paying enough attention to the class by asking silly questions). Thus, a quiet Chinese student may be viewed as lacking critical thinking but such quietness may be due to a Chinese cultural practice that does not promote class participation (Zhou et al, 2005; Tran, 2013).

The Chinese educational practices that favor memorization and rote-learning have also been described as a learning pattern that lacks critical thinking. According to Sakurai, Phyalto & Lindblom-Ylanne (2014), the surface approach to problem-solving tends to resort to memorization and focuses on the procedures of problem solving, while the deep approach resorts to comprehension, analysis, and focus on the concepts. Thus, the deep approach to problem solving can be associated with critical thinking as it emphasizes analysis and deep comprehension rather than memorization. Chinese students exhibit the surface approach to a greater extent than Western

students in a few intercultural comparative studies (Gieve & Clark, 2005; Kember, 2000; Sakurai et al., 2014; Tran, 2013; Zhu et al., 2008).

However, some studies argue that there might be social and educational contexts of Chinese students that were ignored in previous studies. For instance, the examination-oriented education system might influence the Chinese students thinking patterns when they were in China, but could not influence them any more after they came to study abroad (Kember, 2000). Although some studies found that after Chinese students studied in Western universities, they still favored the surface learning approach (Zhu et al., 2008), some studies found the Chinese students were highly apt to change their class participation patterns after studying in the U.S. (Heng, 2016, Liu, 2009).

Critical thinking as situated in Western educational contexts is connected to: Western learning techniques that favor particular writing styles different than Asian writing styles; students' active participation in class discussions as opposite to the Asian culture which values reticence instead of expressing ones' opinions in public; and Western learning styles that favor the deep approach to learning over the surface approach. However, there might be educational and interactional contexts that are important to Chinese students' learning but have not been considered in some current studies about Chinese students.

2.4.3 Critical Thinking as Voice

Some studies approach critical thinking beyond a decontextualized thinking skill or cultural practices and regard critical thinking as being evident when the students' "voice" can be heard. Western academic writing favors students' expression of a strong and individualistic voice (Stock & Eik-Nes, 2016) that expresses opinions supported by appropriate evidence and certain discourse features. In this section, I reviewed literature on ESL (English as Second Language) studies which were conducted with Japanese and Indian students because I was not able to locate literature about Chinese students that treats critical thinking as voice.

Previous studies have examined Japanese students' voices in writing and point out that the seeming lack of a strong individual voice in Japanese students' writing is not due to a lack of critical thinking. Literature studying Japanese students' voices in suggest that the previous assumptions that they lack individual voices (and thus, critical thinking) in academic writing is problematic and does not taken into consideration the new generation of Japanese students' wish to be openly critical (Stapleton, 2001). Matsuda (2002) further argues that after analyzing Japanese students' electronic discourse, he found that they have a strong voice but such voice is constructed through different rhetorical strategies than academic writing in English.

The discussion of voice has pedagogical implications. Canagarajah (2015) presented a study in which he was able to help an ESL student become more aware of the tensions and possibilities among the diverse components of her voice and thus helped her with voice construction which improved the critical thinking in her

academic writing. Similarly using dialogical pedagogy, Fishman and McCarthy (2004) reported a philosophy professors' experience teaching an ESL student to write in a philosophy class. At first, the professor adopted a writing-to-learn technique that hoped to help the students demonstrate critical thinking through logical reasoning, evaluating of evidence etc. However, the student's writing could not be improved until the instructors started to ask the ESL students to write her reflections of reading materials as letters to her fellow classmates. Thus, Fishman and McCarthy argued that the students' writing improved with dialogic interactions that gave the student a clear sense of purpose in their writing.

2.4.4 Critical Thinking as Negotiating Cultural Differences

Other studies recognize that critical thinking situated in Chinese students' cultural background is demonstrated in negotiation of their own culture practice of reticence and the Western culture that promotes students' active participation in class discussions. Durkin (2008) reported that compared to the Western students, Chinese students in a U.K. university tended to be self-reflexive and more likely to express sympathy with people with different opinions. Durkin suggested that the Chinese students found a "middleway" between the confrontational Western argumentation style and the complaisant Chinese argumentation style. Durkin wrote that Chinese students demonstrated their own critical thinking focused on self-reflexivity rather than openly stating their opinions in public.

2.5 Conclusion

This chapter started with an introduction of the situated cognition analytical framework that regards thinking as shaped by physical, social, cultural, and interactional contexts. Then, I reviewed literature on various ways to define critical thinking and considered the extent to which these definitions are contextual. I also explored how critical thinking is addressed in literature on Chinese students' study abroad experiences.

This review of the literature led me to conjecture that critical thinking can be defined on a spectrum from critical thinking as a decontextualized concept of cognitive thinking skills and dispositions to critical thinking as contextualized and embedded in the social, cultural, interactional, and educational contexts. While critical thinking is commonly defined as a set of decontextualized skills associated with higher order thinking in educational literature, such perspectives often lacked the consideration of educational, cultural, and social contexts.

In the next chapter, I introduce the method and context of the study.

Chapter 3

METHOD

This dissertation examines how critical thinking is conceptualized by Chinese students and their U.S. faculty in a U.S. university. Specifically, I am interested in exploring the role of critical thinking concepts in Chinese student experiences studying abroad from both student and faculty perspectives. The design of this project is qualitative and exploratory, utilizing situated cognition framework and a grounded theory approach.

3.1 Research Site

Westie University (pseudonym) is a comprehensive research university located on the east coast of the United States. Westie University has a variety of different majors and is renowned for its high academic and research standards. Westie University offers more than 100 bachelor's and master's degree programs, and 54 doctoral programs. The student body encompasses more than 17,000 undergraduate students and 3,600 graduate students. The students in the university come from a variety of socioeconomic backgrounds.

More importantly for the current study, Westie University recently enrolled a large number of undergraduate Chinese students. In 2013 over 1600 Chinese students attended this university. Seventy-five percent of international undergraduate students

are Chinese students, providing a large pool of participants for this study. Most of these students, similar to other Western universities, are from the booming middle to upper middle class families in China. A leading higher education journal published an article a few years ago³, citing Westie University as an example of a university where Chinese students are struggling to adapt. The article reported that some Chinese students have difficulties adapting to colleges in the United States due to their focus on memorization, academic writing and reticence to participate in class discussions. The article also reported a high rate of academic failure among Chinese students in Westie and other U.S universities. However, Since the publication of this article, a lot of effort was put into strengthening the connection between Chinese students and other students at Westie University. The article highlighted that Westie University had an urgent need to understand the Chinese undergraduate students, making this university an ideal site for this dissertation study.

3.2 Participants

Twelve Chinese college students in their junior or senior year and 10 faculty members from a variety of disciplines were interviewed in this study. The Chinese students were recruited through self-nomination as well as a snowballing method.

³ Due to the protection of the participants' identities, the exact journal and citation of the article cannot be revealed.

Specifically, the students in this project were recruited by one of the following methods:

1. Self-nomination. I sent emails to all Chinese undergraduate students through the International Students and Scholars Office asking for volunteers to participate in a study about Chinese students' critical thinking. The recruiting email is attached on the document as Appendix A.
2. Nominated by other Chinese students who had participated in the interviews.
3. Nominated by faculty members who participated in the interviews.

Out of ten faculty participants, nine faculty members were recruited through students' nominations in the interviews. One was recruited through direct contact because this professor taught a course called *critical thinking*. All of the faculty were nominated by the students because the students either expressed that they "liked" the professor or that they found this professor nurtured their critical thinking.

In the interviews, when students mentioned that one professor or course was influential in their experience, I asked for the name and contact information of that professor and the course. I also explicitly asked the students to recommend for the study any faculty members that encouraged critical thinking. After that initial contact from the student, I wrote to the professors myself to introduce the project and schedule an interview time.

As Morse et al. (2002) suggested, the sample for a qualitative project should "consist of participants who best represent or have knowledge of the research topic"

(p.18). In this project, self-nominations and the snowballing method combined was deemed an appropriate way to recruit participants as this ensured that the participants were either interested in or had key experiences to share about the research topic. At the same time, involving a variety of students (different majors, genders, and years of study) and faculty (different fields of study, genders, and tenure) allowed a diversity of experiences to be represented.

3.2.2 Student Participant Demographic Information

Of the 12 student participants, 7 were male and 5 were female. All of them were in their early twenties during the interview (between 21 and 25), ethnically Han (the major ethnic group in China), and from upper middle class families (they described their parents as bank managers, university professors, or self-employed businessman and company owners in interviews). While there is diversity within the population of Chinese students at Westie, the participants' demographic profile (age, nationality and family backgrounds) is typical of many of the Chinese students studying in Western universities (Heng, 2016).

Perhaps due to the participants being volunteers and/or recommended by professors, the participants tended to be high academic achievers. All of the participants had a GPA above 3.5. Many of the participants received offers for a job, internship, or master program while they participated in the study. The students in this project may represent a group of Chinese students with higher academic achievement than other Chinese students studying in Western universities. This comparatively

successful Chinese students offered rich descriptions on the challenges they faced. At the same time, this group of successful Chinese students may offer experiences of overcoming some challenges as well as reflections on the challenges they faced. Thus, the range of experiences to be included in this project is enlarged and this might enhance this qualitative and explorative study.

Two of the participants, Yi and Bing (pseudonyms) were in a joint U.S. and Chinese university program. The program was called 2+2, meaning that the students would study in a Chinese university for two years and then in a U.S. university for 2 years. These students, then, had experience from universities in both countries and offered insight into how their U.S. university experiences was different from their Chinese university experience. Other than Yi and Bing, all the rest of the students (n=10) studied in a U.S. university for three to four years. Other characteristics about the students are listed in the chart below. All names are pseudonym.

Table 2: Chinese student participants' demographic information

Pseudonym	Gender	Major	Years of study
Yan	Female	Mathematics	4
Zhang	Female	Political science	4
Wanglan	Male	Journalism	3
Changsu	Male	Chemical Engineering	4
Shaoxin	Male	Chemical Engineering	4
Bing	Male	Economics	5
Wuhao	Male	Computer Science	4
Yi	Female	Economics	4
Lin	Female	Economics	3
Miao	Female	Accounting	3
Song	Male	Mechanical Engineering	4
Qiu	Male	Mechanical Engineering	4

3.2.3 Faculty Demographic Information

Ten U.S. faculty members participated in the project. Among the 10 faculty members, 3 were female and 7 were male. The teaching experience of the faculty participants ranged from 3 years to more than 20 years. All but one faculty member was teaching for more than 5 years. In the interviews, the faculty members all told me that they were interested in my topic and would love to receive the results of the study. The demographic information of the faculty participants is listed in the following chart. All names are pseudonyms. All of the faculty were popular among the students according to student descriptions. Some professors were recommended by more than one Chinese student for their excellence of teaching. Professor Young was from China and has been in the U.S. for about a decade since his graduate study. Professor Nath was from India and was in the U.S. for more than a decade, also since his graduate study. In this study, Professor Young and Professor Nath are referred to as U.S. professors, as having professors from a variety of ethnicities is common in U.S. universities.

Table 3: U.S. Faculty participants demographic information

Pseudonym	Gender	Discipline	Teaching tenure
1. Ann	Female	Economics	+10
2. Smith	Male	College Study	+10
3. Young	Male	Chinese History	3
4. Nath	Male	Mechanical Engineer	6
5. Wilson	Male	Chemistry	8
6. Jones	Female	Accounting	+10
7. Davis	Male	College Writing	+10
8. Martin	Male	College Writing	+10
9. Clark	Female	Mechanical Engineer	5
10. Carter	Male	Sociology	+10

3.2.4 Faculty Experience with Chinese Students

After a few initial interviews with faculty members, I noticed that their opinions towards Chinese students varied greatly depending on their discipline, the number of Chinese students in their classes, and their own personal experiences. I grouped the professors interviewed into three categories.

The first category includes Professors Ann (Economics), Wilson (Chemistry), Jones (Accounting), Nath (Mechanical Engineering), Clark (Mechanical Engineering) and Carter (Sociology). This group shared similar experiences and perspectives regarding Chinese students. Their classes generally had about 10% Chinese students, and they had some general and both positive and negative impressions about Chinese student characteristics, cultural traditions, and study habits.

The second category: Professors Smith (College Study), Davis (College Writing), and Martin (College Writing) taught courses that aimed to assist international students transitioning to life in a U.S. university. These professors taught classes that predominantly consisted of Chinese students. They were aware of the challenges that Chinese students faced through personal interaction, personal observations as well as their own academic research projects. They were able to provide many details and their own critical analysis about the Chinese student experience in the interviews. These professors offered both positive and negative interpretations of Chinese student experiences in the interviews.

Also in the second category, Professor Young was born in China and was in the U.S. for nearly a decade. As a professor of history, he was familiar with Chinese classics and has extended personal experience with Chinese culture and society. Professor Young told me in the interview that more than half of the students in his Chinese history class are from China. As a result, he “had seen the variety of problems

that Chinese students ever have in Western universities” (Interview, 04/16/2015). He had also written Chinese newspaper articles about his experiences teaching Chinese students in a Western university; mainly negative commentary about how the new generation of Chinese students did not continue the high standards that previous Chinese scholars had set in Western society. The interview with him lasted nearly three hours and he kept in contact with me after the interviews sharing his thoughts about Chinese students. While he conveyed a sincere concern for Chinese students in the interviews, he also discussed a lot of negative experiences with Chinese students.

The third category were other professors mentioned by students in the interviews that regrettably I could not interview due to the limited scope of this project. Since this project is about professors’ views on Chinese students as a group, especially the challenges that Chinese students experience in the United States, I excluded professors who only had contact with one or two Chinese students. According to the students who participated in this study, those professors who had limited contact with Chinese students usually held the most positive perspectives because the students they encountered were most likely extraordinary in that they were students brave enough to step out of their comfort zones and interact with more Americans. In my view, those students are self-selected which leads to those professors having an idyllic view of Chinese students. Three students mentioned that they had been the first Chinese student encountered by a faculty member in class. According to those three Chinese students, these U.S. professors were pleasantly surprised by their high standard performance in different aspects of learning. However, as I said, this study does not include such extreme positive views about Chinese students because I suspect such views are due to their lack of contact with

larger populations of Chinese students. The U.S. faculty experiences with Chinese students as reported in this study are extremely varied and do not represent all U.S. faculty's point of views of all Chinese students.

3.3 Data Collection

Data collection involved conducting interviews and emailing participants for follow-up questions. The data collection lasted for four months. Interviews are widely useful in qualitative data collecting since an “interview is a directed conversation that permits an in-depth exploration of a particular topic with a person who has had the relevant experiences” (Seidman, 1997). Interviews constitute an appropriate data collection approach to address the research questions because I was interested in student and faculty understandings, perceptions, and personal experiences. The interviews were designed and conducted following Charmaz's (2006) perspectives on intensive interviewing. In intensive interviews, researchers should devise a few broad questions and then invite detailed discussions of the topic. “By creating open-ended, non-judgmental questions, you encourage unanticipated statements and stories to emerge” (p.26). In this project, I asked general questions about the students' and faculty members' conceptions of critical thinking and follow-up questions to delve more deeply into their specific experiences and their reflections. In this way, I hoped to understand the Chinese students' experiences through their perspectives and the perspectives of their professors.

3.3.1 Student Interviews

The semi-structured, one-on-one student interviews (see Appendix II) were conducted face-to-face and were audio-recorded. Each interview took approximately 30 minutes to an hour. The students had the choice of using Chinese, English, or both in the interviews. If students chose to use Chinese in the interview, the transcript was translated into English prior to data analysis. Two student interviews were conducted in English; the rest were conducted in Chinese. As a native Chinese speaker, I was able to accommodate the linguistic preferences of my participants and complete all the transcription and translation of interviews conducted in Chinese. The interviews conducted in English were transcribed by an online transcription service. Student interviews were conducted in coffee shops or in my office or in classrooms at Westie University. Through my observation of the students, I believe they felt relaxed in the interviews since they shared a variety of personal experiences, family stories, and emotions.

3.3.2 Faculty Interviews

Ten U.S. faculty members were interviewed. I understood that student recommendations might be biased towards highly motivated faculty. The faculty opinions in this study are not be representative of all U.S. faculty. However, due to the scope and purpose of this study, my goal was not to describe all U.S. universities. Instead, I was interested to find a few cases that might shed light on how university faculty members experience this issue as compared to the students. It was also

interesting to note that even though most of the professors were recommended by relatively successful Chinese students, there were still problems in the interactions between faculty and Chinese students.

Faculty members were selected to ensure that different colleges within the university were represented in the study. During the interviews, faculty members were told about the purpose of the project, and then semi-structured, one-on-one interviews were conducted in the faculty member's office. I asked them general questions related to how they conceptualized critical thinking; whether they saw fostering students' critical thinking as one of the purposes of teaching; how they described examples of successful student work that demonstrated high levels of critical thinking; and that described their perception of how Chinese students demonstrated critical thinking and how that was similar to or different than other students in their classes. The faculty interview protocol is attached as Appendix III.

3.4 Data Analysis

The data set for this study consisted of the transcribed and translated interviews with U.S. faculty members and Chinese students. To analyze the data, I used a constructivist grounded theory approach (Charmaz, 2011). First of all, I read the transcripts several times to gain an understanding of the students' reflections on critical thinking (Creswell, 2007). The open-coding process, as a way to "name, distinguish, and identify the conceptual import and significance of particular observations" (Emerson et al, 2011, p. 175), is a useful way for researchers to develop

concepts and analytic insights about data. Such a process is particularly useful in exploratory studies as it can allow new insights to emerge from data. In the open coding process, new insight emerged that challenged my previous assumptions about the research question. For instance, I noticed that faculty frequently commented that Chinese students had difficulties in joining class discussions, as well as with academic writing and problem-solving that might be connected to critical thinking. However, in Chinese students' interview data, I found rich descriptions about class discussions, academic writing and problem-solving without explicit references to critical thinking.

As a result of the insights gained through a grounded theory approach, I shifted the research focus from researching the influence of critical thinking on students' experiences to understanding critical thinking concepts embedded in the students and faculty's various experiences and reflections. Accordingly, I found that the open-coding process led to me to the general topics of this project: *definitions of critical thinking, importance of critical thinking, and difficulties connected with critical thinking*. Then, I further developed themes within *definitions of critical thinking* and *importance of critical thinking*. These themes are discussed in Chapter 3. After these general ideas and patterns were generated, I developed deductive codes according to the Roth et al. (2015) frameworks and coded the interviews according to how they reflected the participants' conceptualizations of critical thinking: *social contexts, cultural contexts, educational contexts, or international contexts*. Then, I developed four themes according to the deductive codes to summarize the students' perspectives:

safety to express themselves, voice, cultural differences, and English language proficiency. These themes are discussed in details in Chapter 6.

3.5 Identity and Role Management

3.5.1 Researcher's Identity

Being Chinese myself, this project has special meaning to my personal experience and interests. I experienced college education both in China and in the U.S. For quite some time, I personally believed that my educational experience was very different in the U.S. than in China, although I could not pinpoint the exact cause. At the same time, I am enthusiastic and personally invested in improving other Chinese students' experiences in both China and the U.S. As my research interests unfolded throughout the years of being a PhD student, I became engaged with the topic of critical thinking as I realized that studying intercultural education is more complicated than I had previously thought.

I understood that during the data analysis process, while I was recording and interpreting what was going on in the field, I needed to be self-reflective about how my identity and my initial research interests affected this project. Geertz (1983) suggests that researchers need to bring together two kinds of concepts: “experience-near” and “experience-distant”. An experience-near concept is, roughly, one which someone - a patient, a subject, in our case an informant - might himself naturally and effortlessly use to define what he or his fellows see, feel, think, imagine, and so on,

and which he would readily understand when similarly applied by others. An experience-distant concept is one which specialists of one sort or another — an analyst, an experimenter, an ethnographer — employ to forward their scientific, philosophical, or practical aims (1983, p. 57).

In this study, I had “experience-near” concepts such as the students’ experiences of going to classes, doing assignments, and participating in class discussions. I also had my “experience-distant” concepts that I wanted to explore concerning the conceptualization of “critical thinking”, the goals of college education, and how such conceptualization, goals, and experiences were affected by sociocultural contexts. My own experience as a Chinese student and my knowledge of both communities helped me interpret some of the students and faculty’s words from an “insider” point of view. However, my experiences could also hinder my ability to see the reality truly from the participants’ point of view, instead of my own. Some phenomena that might have been significant to this project could seem insignificant to me because I was too familiar with it. I hoped that by being reflexive in the analysis process, I remained aware of my personal biases and took care to manage and understand their impact on the project.

The other issue that I needed to be aware of was how my identity as a Chinese student who had studied in the U.S. affected my relationship with the research participants. On one hand, I was an “insider” to the Chinese students, since I spoke their language and understood their concerns. Seeing me as an insider may have helped the students to open-up and express themselves truthfully. Being a graduate

student from U.S. institutions also meant that I had certain level of authority in terms of education and language learning. In the interviews, several Chinese students consulted with me regarding different issues in their lives. Bing (Economics) asked me if it is normal that whenever he received test scores below an A, he would feel guilty about spending time socializing with other students rather than on his study. Changsu (Chemical Engineer) consulted with me about immigration policies after graduation. Wuhao (Computer Science), after showing me one of his writing samples, asked me to give him advice about writing because he could not meet his teacher's expectations even after several revisions. I felt very grateful that the students opened up and told me their difficulties and concerns. The questions they asked me in the interviews reflected that the Chinese students had many concerns and difficulties that were perhaps not being fully addressed by the university.

I also anticipated that my Chinese background could influence how faculty members would answer my questions. Some of the faculty might suspect that I was an advocate for the Chinese students, thus, perhaps they were cautious about saying negative things about Chinese students in front of me. I found that in the interviews, professors tended to emphasize repeatedly that they were aware that Chinese students were not a heterogeneous group, just like American students. They phrased their negative comments so that they were commenting on specific persons, not the entire Chinese student body.

For instance, Professor Ann discussed the rules for Chinese students wanting to use dictionaries for exams. She did not allow any usage of dictionaries during

exams because she worried that students might write notes in the dictionary. She then noted that her caution against cheating in the exams was not particular to the Chinese students, any student could cheat:

...just like every student, American students as well, you have good students and then you have students that aren't doing so well. You have students that come to class and students that don't come to class. So that's just students.
(Interview 05/15/2015)

Professor Wilson's (Chemistry) said three times that "Chinese students come in all types" at different points in the interview. When I asked Professor Carter (Sociology) to describe his perceptions about Chinese students' "critical thinking", he took a long pause and then abruptly changed topics rather than directly telling me his perceptions. Some professors were also very careful in framing their perceptions; for instance, after they described their perceptions of the Chinese students, they immediately excused any difference as due to language barriers, or said it might just be their personal experience and does not represent that of other faculty members.

Some of the professors found the interview process "uplifting". Professor Davis (College Writing) told me at the end of the interviews that he "appreciated the questions" because they allowed him "to reflect on his teaching". He told me he was very tired and upset after teaching four classes in the morning before he came to the interview, but after the interview he realized what he had done was very valuable. I did not plan for my project to have such influence on the faculty but I am very glad that this project could achieve this.

From several professors' perspectives, my language proficiency set me apart from "ordinary Chinese students" that they taught. Professor Davis (College Writing) and Professor Nath (Mechanical Engineering) explicitly asked me at the end of the interview where I learned English and why I speak English better than the rest of the Chinese students. I think that my language proficiency gave the professors the impression that I understood the Western culture better than the other Chinese students; therefore they could trust that I understood their concerns of teaching and the cultural gap they felt with some of their Chinese students. In this sense, my English language proficiency helped this study. As an extreme example, Professor Young asked if I could be his spy – I could "go to his class, make friends (with) the Chinese undergraduate students, and study why they would behave like that."

3.5.2 Participant Voices

All the U.S. faculty participating in this project were recommended by Chinese students. Although in the analysis I analyzed some faculty's thoughts critically, these criticisms are not about their incompetence in teaching, rather an analysis of their struggles teaching Chinese students. Some of the professors also expressed their opinions of students, which I think should be interpreted as their expectations which may or may not be met by the students, rather than complaints.

Professor Ann was recommended by three of the Chinese participants for her outstanding teaching. The Chinese students described her as a very responsible, helpful and caring professor. Professor Jones' Chinese students remembered her as a

professor who taught four classes, 200 students in total, but could remember every student's name. The student also appreciated that "she grades all the papers herself. She does not let graduate students to grade papers like some other professors do."

When I finished the interview with Professor Young, I ran into a Chinese student who was waiting to talk to him during office hours. I heard the Chinese student greet him "Professor Young" in Chinese with a large smile and playful tone, like an old friend or someone with a similar age, indicating that they had a personal and relaxed relationship.

In the case of Professor Davis, a student recommended him to me because he was an "interesting grandpa". In Chinese, an 'interesting grandpa' captures the student's respect of the professor and their enthusiasm in teaching.

The U.S. professors in this project are not representative of all the professors on campus, and could be the type that could invest more time and energy in undergraduate teaching than average professors. I intentionally chose this group because they provided both positive and negative lessons regarding the subject of this study. These professors acknowledged and described the struggles and challenges involved in teaching Chinese students. Such struggles are not necessarily the result of the professor's lack of motivation or investment in teaching, and may be shared by other professors when teaching Chinese students.

Chapter 4

U.S. FACULTY AND CHINESE STUDENTS' EXPLICIT DEFINITIONS OF CRITICAL THINKING

In this section, I discuss the U.S. faculty and Chinese students' explicit definitions of critical thinking. I recognized (at least) three ways that faculty defined critical thinking, and (at least) five ways that students defined to define critical thinking. The majority of the U.S. faculty defined critical thinking as information processing skill and did not emphasize the importance of the classroom contexts or students' backgrounds in these definitions. At the same time, the faculty also defined critical thinking as deconstruction of students' perspectives, and other philosophical concepts. While some Chinese students also defined critical thinking as information processing skills, the students' definitions tended to focus on the purpose of the activities and interactions of opinions during their study abroad experiences. In the faculty and the students' explicit definitions of critical thinking, I discussed the possibilities to contextualize critical thinking in the purpose of the activities, the interactions and dialogues in between opinions and ideas, as well as the social and historical contexts.

4.1 The U.S. Faculty's Definitions of Critical Thinking

This study interviewed U.S. faculty members regarding their definitions of critical thinking. Most of the U.S. professors interviewed for this project suggested a decontextualized thinking approach to critical thinking as their definitions assumed that the thinking skill acquired in the class can be applied elsewhere. Seven out of ten

professors explicitly defined critical thinking as applying a cognitive skill that involves “higher order thinking” such as problem solving, analysis, synthesis, and self-reflection on the course contents, and producing some result according to the requirements of the discipline.

For instance, Professor Jones (Accounting) defined critical thinking as an instrument that helps the students analyze the information, and produce a report according to the standards of accounting. Her definition of critical thinking is as following:

Author: How do you define critical thinking?

Jones: I teach an economics course, so it is all about critical thinking. Really. Let me show you.....in this type of [financial] problem you see you've got to see the standards and then you've got this information to interpret in order to answer the questions, right. So that's what I mean. You have – on the last test – *You have to analyze the information and then put it in a certain format* -- this is an internal accounting in which you're solving problems internally for managers...so *they have this information and they have to give me financial statements*. (Interview, 05/11/2015, the emphasis is mine.)

Critical thinking in this case involved the students’ abilities to interpret and analyze the information, and then to produce a final result that meets the pre-existing standards of the discipline. Thus, critical thinking is contextualized in the discipline of accounting. However, when a student comes to solve the problems, they might not be analyzing the information to solve an accounting problem, they were solving a problem to get the right answers for the professor (Labaree, 1997). In many situations, the questions presented to the students were reconstructed for the purpose of teaching based on the real-time situations, and thus, some of the contexts of the problems were simplified for the students (Barnett, 1997). In this case, critical thinking is decontextualized from the contexts of college teaching.

In the following quote, Professor Ann (Economics) defined critical thinking as decontextualized problem-solving skill in an Economics class. Professor Ann said she “purposefully give[s] vague guidance” so that students can develop their own problem solving skills with some level of independence.

One thing I’ve been doing is to try to give them some abstract problems, for the lower classes, students have problems that are very locked up, the procedures are very specific...At second level class, I give them much vague instructions, and I tell them, I am doing this on purpose *because when you graduate, and you start to work, your boss is not going to tell you what to do...so the students need to use the help function and looking up things themselves...* So that’s critical thinking, an important skill to develop.
(Interview, 05/15/2015)

In this quotation, critical thinking was reflected in students’ independent problem-solving by “using the help function and looking up things themselves”. Professor Ann emphasizes problem solving skill that can transfer from a classroom setting to a career setting. In Professor Ann’s expectation, such problem-solving might be authentic and similar to the problem-solving that the students might meet in their future job. However, in my evaluation, the purposefully withdrawn guidance by giving students vague instructions may have two possible results: It is possible that although the project does not have a fixed guidance, the project has a fixed correct answer and the students need to figure out the answer by guessing what answer (and also possible correct solution) Professor Ann was expecting to see. It is also possible that without detailed guidance, the students may come up with their own ways to solve the problem. The students’ creative ways might be recognized and approved by Professor Ann. In this case, the professors’ expectations and the way the problems were presented by the professors were important contexts for the students’ problem-solving.

Defining critical thinking as information processing skill that can be transferred from classroom to work place in Professor Ann's class ignores some of the dynamics present in the college teaching context.

As an instructor of academic writing, Professor Davis defined critical thinking as reading to understand rhetorical strategies and the ability to apply those strategies:

There're two sides of critical thinking...A part of it is just reading clearly – reading to understand – and the other side is reading to understand the rhetorical strategies of the writer and to apply those rhetorical strategies yourself. (Interview, 05/16/2015)

Situated in a college reading and writing course, Professor Davis' definitions of critical thinking are compatible with McGuiness (2005), which involved “sensitive reading”, “deep understanding”, and the ability to apply what was learned in different contexts. Similar to the previous example where the students were required to produce a financial report to demonstrate their analysis of the financial data, Professor Davis's students were required to produce a writing to demonstrate their understanding of the rhetorical strategies of the writer. Here, critical thinking as “deep understanding” is situated in the discipline of college writing, with the assumption that once the rhetorical strategies are learned, the students would be able to apply it in writing themselves. According to situated cognition theory, writing is not only about techniques and strategies, but also, the students' motivation, goals, emotions and cultural norms (Matusov & Soslau, 2010).

Professor Nath (Mechanical engineering) defined critical thinking in his mechanical engineering lab work as analyzing deviations from expected results:

Critical thinking comes in, in the lab, you have the principle, but the principles are always based on the perfect conditions. In your lab, it is never perfect. There is always something...that can lead to some deviations from the theory. I

want the students to analyze that and be able to list all the possible deviations.
(Interview, 03/02/2016)

While Professor Nath mentioned “analysis” as critical thinking, the subject for the analyses are different due to the nature of their disciplines. The analysis in the previous example refers to using rhetorical strategies in writing, while in this example, Professor Nath requires analysis of unexpected deviations in the lab; the different perspectives regarding critical thinking are situated in the domain/disciplinary differences.

In the examples above, critical thinking is defined as information processing skills, specifically analysis, problem-solving and judgment in the context of the respective course: Business, College Writing, and Engineering in Western universities. In all of these activities, the students might be fulfilling the teachers’ requirement to get a degree. Therefore, students may, instead of analyzing the information, try to estimate the teachers’ expectations. In the following examples, I discuss some faculty’s conceptualization of critical thinking that are situated in students’ experiences and perspectives.

4.1.1 Critical Thinking Situated in Students’ Perspectives

While most of the professors interviewed define critical thinking as higher order thinking skills situated in their disciplines, the conceptualizations of three other professors took a different approach. For instance, Professor Young (History) explicitly problematizes the “critical thinking” concept and defined it as “deconstructing the students’ previous knowledge and encouraging the students to question their assumptions.”

Professor Young: In history, we don’t use the term critical thinking, but we have a more accurate term, to *deconstruct*... In my case, my

most important job is *to deconstruct what they (the Chinese students) know about Chinese history*.....To give an example, what is China? Where is your hometown.

Author: A province in central China, Hubei.

Professor Young: See...you don't need to consider 'what is China' before you went abroad. You are within China every second. But after you go abroad, "What is China?" becomes a real question. They [the students] had to situate all the vocabulary they once knew, in new situations. Two situations specifically, in this University, [an English speaking modern country], and in the Ancient China, [2000 years ago]...You have to consider this, ask yourself questions, and situate yourself in different contexts. (Interview, 04/16/2015)

In the case of this history class, critical thinking is defined as deconstructing students' previous knowledge and assumptions about China. By suggesting new contexts in which to consider China; that is, in the context of an English speaking country and the China of 2000 years ago, the professor hoped to deconstruct students' previous assumptions. Deconstruction is connected with the idea of critical thinking by many educators concerned with philosophy (Biesta & Stams, 2001). In Professor Young's course, deconstruction was situated in the students' experiences of being in China and in the U.S. Invoking students' familiar and local experiences as they relate to materials was a pedagogy proven to be successful for the scholars who subscribed to situated cognition perspectives (Dalton & Tharp, 2002; Garcia, 1991). Instead of conceptualizing critical thinking as a skill that can be strengthened through completing pre-determined tasks, Professor Young regards critical thinking (deconstructing students' previous knowledge) as the goal of teaching. Thus, in my analysis, Professor Young's conceptualization of critical thinking is situated in students' knowledge and experiences.

4.1.2 Critical Thinking Situated in the Discipline

In the interviews, two professors defined critical thinking as some philosophical thoughts that need to be understood through studying the history of the discipline. Professor Wilson defined critical thinking in the following way:

The critical thinking part of it comes into play maybe a little bit...But in terms of discussing the great philosophies behind everything... For example, when we say that Dalton put forth the atomic theory that said this and this and this and now it's 200 years later, we know a little bit more than we did before, so maybe this is a little bit wrong, maybe this is a little bit wrong, but it's still very useful to us. You know, one of the things that I do try to show in a course is how science has changed over the years... (Interview, 04/18/2015)

Thus, for this professor, critical thinking constitutes: The understanding that although a theory may be deemed as problematic in some contexts, it can still be helpful in others. In other words, understanding that the truth in scientific theory can be dependent upon context. Specifically, Professor Wilson emphasizes that such theory needs to be learned through the history of science, for instance, Dalton's theory 200 years ago.

Overall, critical thinking in Professor Wilson's understanding is about deep and philosophical understanding of science that are also connected with the taught content. In some sense, the philosophy of science also comprises higher order thinking skills such as making and testing hypotheses, which is valued in various cognitive definitions of critical thinking (McGuinness, 2005; Ennis, 1996). However, Professor Wilson noted that the awareness of the limitation of science is beyond a skill for making and testing hypothesis. I interpret Professor Wilson's conceptualization of critical thinking as situated in the history of science. Specifically, the students need to understand how science progressed throughout history to understand critical thinking in science.

In another example, Professor Davis (College Writing) defined critical thinking as situated in the history of human rights.

Critical thinking has two sides ...for the second side, I always have a unit on human right, you know, *there's an issue that comes up with regard to human rights that human rights is not without an historical context*. How was it created? What was it created for? You know, and it was created really largely by the victorious powers after the Second World War...so we would talk about that and when the students wrote about various issues that needs them to take a stance, I suggest the students to consider the stance of human rights...so that's critical thinking that deals with higher level of values. (Interviews, 04/10/2015, the emphasis is mine.)

Professor Davis explained that he encouraged his students to study the history and various issues as well as critiques concerning human rights, but overall he believed that it was important to teach “higher level critical thinking that deals with values”. Critical thinking has always been associated with higher level values compatible with the definitions of critical thinking common in critical pedagogy and political engagement (Burbules, 2000).

In situated cognition, “tools embody the history of a culture. They enable thought and intellectual processes and constrain or limit that thought” (Wilson & Myers, 2000, p.15). By teaching Dalton’s theory, Professor Wilson situated the chemistry principles that he was teaching in the history of science. The students were not simply learning about Dalton’s theory, but exposed to thought and intellectual processes about history of science. By discussing human rights as a tool situated in historical contexts, and teaching the history of human rights, Professor Davis treated human rights as a tool embodied in history that encouraged students to critically examine it. Thus, critical thinking was situated in the history and larger contexts of the

disciplines that encourages students to engage in more philosophical thinking in the discipline.

In conclusion, 10 U.S. professors provided their explicit definitions of critical thinking in this project. The majority of the faculty tended to define critical thinking in college teaching that often emphasized analytical and problem-solving skills specific to the class requirements. Three professors further defined critical thinking as the deconstruction of students' previous knowledge, the philosophy of science, and the incorporation of higher level values into coursework. These professors' approach to critical thinking tended to be in alignment with situated cognition perspective of learning which emphasizes constructing and reflecting on the history and philosophy of the disciplines.

4.2 The Chinese Students' Definitions of Critical Thinking

4.2.1 Difficulties Defining Critical Thinking out of Context

While most of the professors interviewed in the study were able to provide their definitions and examples of critical thinking without any hesitation⁴, many

⁴ All the professors offered their definitions of critical thinking upon asking except the Chinese history professor, who explicitly criticized "critical thinking concept" by providing "deconstruction" as a better alternative.

Professor Young: Everyone is talking about critical thinking, critical thinking, but no one knows what exactly they are talking about. The discipline of history has a much more accurate term for it, deconstruction.
(Interview, 04/16/2015)

In the previous section, I interpreted "deconstruction" as Professor Young's definitions of critical thinking in history discipline.

Chinese students appeared to hesitate in providing their definitions. In my reflection, my interview question which asked the Chinese students to define critical thinking out of context was problematic because critical thinking concepts were abstracts construct that the Chinese students were perhaps not ready to discuss at the time.

During the interviews and the first round of data analysis, I was preoccupied with understanding how the Chinese students defined critical thinking in the interviews. In many cases, the students did not give me their definitions. Instead, I had to provide some probing to elicit their thoughts and I worried that my “probing” might have affected their answers.

In the second round of analysis, I realized that what I had recorded WAS the Chinese students’ immediate response about “critical thinking”. Their immediate response to “critical thinking” was that they were not sure how to define it because the question was asked without any information on what context critical thinking was being applied to. Upon reflecting on my research question, I assumed that Chinese students would be able to define critical thinking as educational literature often discusses Chinese students’ critical thinking. However, the Chinese students might not have been as familiar with critical thinking concept as I had assumed.

When I reexamined the interviews for Chinese students’ hesitation to define critical thinking, I surprisingly found that more than half of the students (n=7) expressed uncertainty about defining critical thinking. Among these seven students, five of them, with some prompting from me, were able to define it later on in the interview. It seems that simply using the term “critical thinking” was not enough to help the Chinese students recall anything in their memory, cognition, or experience. I had to provide some contexts for them before they could define critical thinking.

In the following example with a Chinese student Yi (Economics), when I asked for her opinion of critical thinking, she in turn asked me to specify what “critical thinking” means. Only after I gave her some intentionally vague clarification, she started describing her experiences:

Author: Have you had any professor that requires critical thinking in their teaching or nurtures critical thinking in their teaching?

Yi: In terms of what ways?

Author: Like, you think any professors when they grade the papers, they look for critical thinking in the paper? (Interview, 04/05/2015)

In this interview, the term “critical thinking” did not seem to immediately register any experience for Yi. I had to provide a context of critical thinking as a course requirement to help Yi make sense of my interview questions.

In another interview, after describing her definitions of critical thinking in multiple ways, Lin (Economics) asked me to confirm whether her ways of defining critical thinking were correct. I had told all of the students at the beginning of the interviews that all the questions I asked had no correct answers. However, Lin seemed to think “defining critical thinking” is a question with singular and definite answer. She seemed to expect that I had the correct answer for this question that she needed to get.

Author: Have you heard about the concept, critical thinking before? How would you define it?

Lin: Yes, I have heard it before. I don't know it too much, but for me, it means having the ability to see things from different perspectives. To give an example.....Another is global perspective. *I actually do not know whether it is related to critical thinking or not.*

Author: Don't worry, it is very related.

Lin: So if I have global perspectives, I might have friends in different cultures.....*Actually, I am still not sure what critical thinking is.* Do

you have a definition of it? How do *you* understand this? (Interview, 03/04/2015)

Lin defined critical thinking in the contexts of studying abroad and being exposed to various perspectives from different cultures. However, she “was not sure what critical thinking is” and asked for my “definition.”

Overall in the interview data in this project, the Chinese students provided rich descriptions of their experiences studying at Westie University and were very reflective in their descriptions (which are discussed in the next chapter). However, when I asked the Chinese students to define critical thinking, some of the students felt they needed to get the correct answer from me (Like Lin did in the last quote) although I told them at the beginning of the interview that there are no correct answers to any questions in the interview. It is also possible that critical thinking is an educational concept that the Chinese students were not familiar with. A study that compares Chinese students’ reactions to questions about critical thinking to those of American students would demonstrate if the Chinese students’ hesitation was due to their culture or not. However, this is beyond the scope of the current study.

Another example of Chinese students’ hesitation to define critical thinking was that after describing to me some personal experiences, for instance, resolving disagreement with their parents and other authority, the Chinese students apologized to me that they said something unrelated to “critical thinking concept” and had wasted my time. I assured them that what they had said was related to critical thinking and encouraged them to continue describing their own experience. It seemed that while some researchers and U.S. faculty might value that the students’ independent thinking against the parents or authority opinions as critical thinking, these two Chinese

students did not perceive that there were connections between their experiences and critical thinking concept.

In my reflection research journal, I noted, “I almost grudge bringing up the question that asked students to define ‘critical thinking’, because it interrupted my interesting conversations with the students about their experiences studying in the U.S. universities” (Research journal, 05/20/2015). Almost all the interviews with the Chinese students had some abrupt hesitation or pauses when I asked the students to explicitly define critical thinking. From these experiences, it seems that “critical thinking” concept may not be so helpful for the Chinese students to describe their experiences in the U.S. universities. For the students, the questions that asked them what they found difficult about joining class discussions and about completing academic writing elicited much more personal memories and experiences than the questions about critical thinking. At the same time, the faculty’s and educational literature’s discussions about academic writing and joining class discussions are often associated with students’ critical thinking (Angelova & Riazantseva, 1999; Du, 2013; Li et al., 2012; Turner, 2004).

Literature has reported that compared to U.K. students, Japanese students appear to hesitate to define critical thinking (Manalo et al, 2015). However, Manalo et al (2015) interpreted the Japanese students’ hesitation as lack of familiarity with critical thinking which tends to be contextualized in Western societies rather than Eastern societies. Similar to the Japanese students, the Chinese students in this study also seemed somewhat unfamiliar with the critical thinking concept or uneasy in using it to discuss their academic experiences. From the perspectives of situated cognition, defining critical thinking out of context (as I asked the students to do in the interviews)

was very hard. As the U.S. faculty were explicit about their own teaching goals and requirements in the disciplines, they could easily conceptualize critical thinking as analytical skills in their disciplines of teaching. The Chinese students were not sure how to situate critical thinking concept intuitively. However, the absence of explicit knowledge of the concept doesn't imply the absence of skills within the discipline that could be represented as evidence of critical thinking. They are, after all, novices within their respective disciplines.

It is also possible that commonly defined critical thinking concept (as a higher order thinking skill) is not important for the students' understanding and descriptions of their academic experiences in Western universities. Therefore, the Chinese students had not given much thought to critical thinking concept. Thus, when I asked the Chinese students to define critical thinking, they found it is hard to define it out of context. However, when I asked for the Chinese students' reflections about their own experiences, they became more vocal and were able to situate critical thinking in their own specific experiences.

In the following sections, I describe the Chinese students' explicit definitions of critical thinking.

4.2.2 Critical Thinking as Higher Order Thinking Skills

Out of the twelve students who participated in the study, five students used cognitive terms such as problem solving, making judgments, or support of one's opinions in their definitions, similar to the faculty. In the following quotation, Lin (Economics) described her concept of critical thinking as making judgments according to economic models:

- Author: What do you think is the definition of critical thinking?
Lin: Critical thinking, I think, it is to *make analysis and judgement*... In one...class I took, I had to make a decision about where to rent the apartment. *So I evaluated pros and cons according to some model and reached a conclusion.*
Author: Did you really rent the apartment according to your decision?
Lin: Yes, I did. Of course, I spent a lot of time working out that decision. (Interview 03/15/2016, the emphasis is mine.)

In the example provided by Lin, critical thinking was evaluating options and decision making in the context of her economics class. Similar to what her professor had expected, critical thinking was a higher order thinking skill that helped her work out problems in class and that could also be applied in practical uses in her life.

Similar to Lin, Song from mechanics engineering program also defined critical thinking as analytical skill in his mechanics engineering class.

- Author: Have you heard of critical thinking before? How do you define it?
Song: In mechanics engineering? I guess in mechanics engineering, there are problems to solve and there are concepts and principles. *You have to analyze the problems and choose the right principles.* (Interview, 03/12/2016)

In Song's example, critical thinking was analyzing the problems in his engineering class and choosing the right principle to solve the problems. There could be a variety of different problems in a mechanical engineering class. Critical thinking, can be used to solve a variety of problems in mechanical engineering class.

Song's concept of problem solving in engineering as critical thinking, however, was disputed by his instructor, Professor Nath. According to Professor Nath, "the principals that the undergraduate students work with are centuries old. The students do not invent the principal, or the problem, or the problem solving process." (Interview, 03/02/2016) According to Professor Nath, solving an engineering problem

in his mechanical engineering class was not critical thinking because the problems did not involve students' creativity. From Professor Nath's perspective, the engineering problems were predetermined by professors and curriculum, thus, solving the problems were not a demonstration of students' critical thinking. Thus, critical thinking situated in engineering classes involves students' creativity in solving problems.

Yan (Math), defined critical thinking as considering opposite points of views in argumentative writing. She gave an example from a writing assignment in which she wrote about a controversial topic.

As she put it:

Yan: "Critical thinking"...I think, it means, *thinking, or researching about something, you have your own opinion, you think about opposite opinions, (or) the problems of the opposite opinion*. I think that's one way to define critical thinking. It is easier to give a specific example than to offer a definition.

Author: That's fine. What specific example are you thinking about?

Yan: The writing I did for that class, the topic is should women join the military during the war time. There are pros and cons, and I considered both and I argued that women should join the military during war time. That's an example of critical thinking. (Interview, 02/10/2016)

In Yan's example, critical thinking is examining different perspectives in argumentative writing. Her opinion is similar to Scriven & Paul (1987) and Ennis (1993) cognitive definitions of critical thinking that emphasize evaluating evidence and arguments. In such perspectives, the skill to evaluate pros and cons and take a stance are valued in this writing assignments as it is assumed that such skill might be applicable to students' life and workspace.

4.2.3 Critical Thinking Situated in Studying Abroad Experiences

Several students defined critical thinking as critical examination of their own or the professors' opinions. For instance, Miao noted that studying abroad exposed them to different outlooks:

Critical thinking allows you to think about things from different perspectives, especially in this kind of university. You have a lot of international students, and even within American students, there is a variety of people. You see different perspectives. In the past, from one to eighteen, I grew up with the same kind of people, everyone thinks alike. Here, in the U.S. sometimes, you see people doing things you don't understand, but you can try to learn their perspectives, all different kinds of perspectives. (Interview, 04/15/2015, the emphasis is mine.)

In this sense, critical thinking is situated in the context of the Chinese students being exposed to different perspectives while studying abroad. Some students expanded their ambitions as their own assumptions were challenged. For instance, Yi said:

...studying in the U.S., my professors specifically, challenged the way I thought. The professors always encourage me, they are always positive, they made me think and want to improve myself. When we were in China, people are too tired of learning after (their) thirties or forties. I know a teacher at ELI, goes back to graduate school after sixties. In the past, I have never thought about my future. So, now, I see that I can work like that! I can live a life like that! I have never thought about it before I come to study abroad. (Interview, 09/03/2015)

The lifestyles that Yi encountered in the U.S. challenged her perceptions about what people can achieve. Being abroad and seeing different life styles contributed to Yi's feeling that her assumptions were being challenged as a result of studying abroad experiences. In these cases, the student definitions of critical thinking were situated in their broadened perspectives after studying abroad.

In the following student's description, the conflict between course content and student experiences encouraged the students to critically examine realities in China as well as course content in the U.S.:

One aspect about critical thinking, is...studying in the U.S. you hear different voices. My boyfriend is from a national minority. One of his friends was caught, he didn't do anything wrong, he probably just made some racial extremist talk, but he was taken to prison. Sometimes, I do feel very proud about China. In those days, I hate it when the U.S. professor critiqued China. They don't know how Chinese people feel at all. Other days, after I talked to my boyfriend, I was angry with how he was treated. When I thought about that, I felt the (U.S.) faculty's critique of Chinese society is very right. I think it is necessary and it is a good thing. (Interview, 09/20/2015)

Lin stated that she had mixed feelings about the U.S. professor's negative comments about China. Such negative comments were in conflict with her patriotism and her positive feelings about China, yet encouraged her to critically reflect on some aspects of the reality of Chinese society. The struggle in this quotation is representative of the students' critical examinations of their own as well as the faculty's opinions in their studying abroad experiences. Thus, critical thinking is situated in the interactions and conflicts between Chinese students' experiences of being in China and being exposed to the U.S. professors' perspectives.

In all three quotations above, the Chinese students demonstrated their critical thinking outside formal classrooms, thus, critical thinking in this way of conceptualization did not involve any professors' pedagogy. However, the students' life experiences and their reflections about the experiences were highlighted in these quotations, which is aligned with situated cognitive theory of teaching that often anchored the theories or material to be learned in students' experiences (Dalton & Tharp, 2002).

4.2.4 Critical Thinking Situated in Explorative Studies/Experiential Projects

While the previous discussions of Chinese students' experiences tend to focus on humanities and social science programs, those majoring in science programs defined critical thinking differently. In this project, all five students who had worked on a senior design project in Mathematics or Engineering cited those experiences as examples of critical thinking which were authentic and explorative. In my analysis, the students' descriptions of design projects were similar to cognitive apprenticeship (Collins, Brown & Newman, 1987). Based on situated cognitive perspective, Collins et al (1987) proposed that teachers can help students develop new skills by working side by side with the students through modeling, coaching and scaffolding. In the students' interviews, Chinese students emphasized that they cherished design projects because professors and students worked together instead of the students' learning from the professor. Thus, there was cognitive apprenticeship type of learning in design projects (Rogoff, 2003). Qiu (Mechanical Engineering) said:

Author: Do you think the education here nurtures your critical thinking?

Qiu: Yes. Especially my senior design project, you don't have an absolute answer. Even your professor doesn't know the absolute answer either. You have to explore it on your own. Where is the problem? I discuss it with the post-doc that assigned to work with me. We just explore it together. *So I think that...the habit of thinking...being trained to explore something, that is critical thinking.* (Interview, 02/10/2016, the emphasis is mine)

Following is another example of a student describing their design project as requiring critical thinking. Yan (Mathematics) explicitly stated that in her design project, critical thinking was part of "authentic research":

In the senior design project, *I learned how to do research, authentic research, like, real research.* You are given a project and there is no correct answer there. You might need to try doing it this way, and it didn't work out. You will

need to think of other ways to do it. Unlike previously in school, (when) you have a correct answer. There is no correct answer now, so for me, that is critical thinking. (Interview, 04/05/2015, the emphasis is mine.)

For Yan, making mistakes and discovering what worked made the experience “authentic”. She emphasized that in the project, she no longer felt like she was searching for the predetermined correct answer, but discovering the process and the solution for herself. The students’ conceptualization of critical thinking here is shaped by the purpose of the activities (Roth and Jornet, 2013).

It is interesting that in these definitions, the Chinese students emphasized the “real” and “authentic” skills needed for their senior design projects as critical thinking. It seems to imply that from their perspectives, the projects in other classes could be less “authentic”. Overall, some of the Chinese students with experiences of design project in this study, mentioned the opportunities of working in a design projects with post-doc or mentors as their illustration of critical thinking. The Chinese students cherished such cognitive apprenticeship as their examples of critical thinking.

4.2.5 Preparations for Careers

One more definition of critical thinking from the interviews with the Chinese students was learning skills for their life and career instead of simply for exams:

Author: How would you define critical thinking?

Bing: I want to say managing my stress, when I get a low GPA I can’t sleep well, and I worry too much about it. And I can’t spare my efforts to any other things, so I just –

Author: Like what? Sports?

Bing: Like sports, like working out. I can’t watch some financial news, and *to come up with – to learn some other stuff*, but not 100% focused on the study itself. (If you focused on your GPA 100%) you can’t bare your attention to different areas, and *you can’t build up your career field in like networking or something like that*. So I think you have to manage your pressure, and that’s not a big deal

[and do not make a big deal] about the GPA. *And you have to learn something.* (Interview, 04/02/2015)

In Bing (Business)'s reflections, critical thinking was connected to stress management that allowed him to vary his focus while still maintaining a high GPA. Critical thinking was about balancing his time to learn for his future career, while learning textbooks, preparing for exams and working towards a high GPA. In Bing's concept, the time spent on learning for exams and learning for future career conflicted while those of educational researchers assume that the contents learned in university would also be helpful for the students' future career (Arum & Roksa, 2011). From Bing's perspectives, critical thinking needed to specifically be situated in the college learning that required him to balance his time between learning for exam and learning for future career.

4.3 Conclusion

In this chapter, I present the Chinese students and their U.S. faculty's explicit definitions of critical thinking. Most of the U.S. faculty and some Chinese students defined critical thinking in ways that suggested a cognitive thinking skills perspective on critical thinking; this is a popular way of defining critical thinking in literature (Ennis, 1996). Other than such definitions, I found that the faculty also defined critical thinking in ways that suggested that deconstruction and philosophical ideas in their fields were part of critical thinking. Meanwhile, the Chinese students defined critical thinking as the examination of opinions, explorative and authentic learning experiences, as well as learning for careers. Thus, critical thinking was situated in students' perspectives, in history of their discipline, in students' studying abroad experiences, in explorative projects, as well as in relation to preparation for future careers.

A summary of the U.S. faculty and the Chinese students' conceptualization is provided in Table 3 and Table 4. Overall, when critical thinking is discussed in ways that emphasize cognitive thinking skills, it tends to be instrumentally used to get to some end product, most likely, something that meets the faculty's expectation. The assumption was that the cognitive skill acquired in class would also be useful for students' future career. However, such perspective was disputed by my analysis and by some participants: problem solving in college classes might contain a peculiar way of thinking and learning that could not be applied elsewhere. Some faculty and Chinese students presented that when critical thinking was situated in the students' perspectives and experiences, it is more likely that education affects the students' previous assumptions about their lives and the disciplines, and possibly has a larger impact on students.

These results contribute to the literature that explores definitions of critical thinking in practice by presenting various possibilities of critical thinking as defined by Chinese students and their U.S. faculty. Instead of being a vague concept, critical thinking concept elicited rich descriptions from faculty and Chinese students on their experiences and their understanding of education. Furthermore, the Chinese students in this study did not regard the critical thinking concept as unsuitable for their social and cultural backgrounds as some literature suggests (Bartlett et al, 2015; Johnston et al, 2013). Instead, the Chinese students provided various and rich definitions of critical thinking from their own social and cultural perspectives. Thus, this study has implications for educators of Chinese students. Instead of regarding the Chinese students as "foreign" to the critical thinking concept (Paton, 2005), it is important to situate critical thinking in Chinese students' experiences of studying abroad. Their

intercultural perspectives may serve as assets for us to explore critical thinking in intercultural contexts.

The difference between U.S. faculty and Chinese students' conceptualization of critical thinking shows that the conflicts and contradictions among different theories of critical thinking do exist among U.S. faculty and Chinese students. Such different conceptualization of critical thinking might influence the way faculty and students discuss the importance of critical thinking and the challenges that Chinese students faced in the U.S. which are discussed in the next chapters.

Table 4: U.S. Faculty's explicit conceptualization of critical thinking

Pseudonym	Discipline	Definitions of critical thinking
1. Ann	Economics	Analyze the problem and solve it independently
2. Smith	College Study	Analyze topics and evaluate sources
3. Yang	Chinese History	Deconstructing students' previous opinions
4. Nath	Mechanical Engineer	Analyze the situations in lab and list all the possible deviations
5. Wilson	Chemistry	Making hypothesis and testing hypothesis using a scientific method; understanding limitation of science theories.
6. Jones	Accounting	Analyze the information and then put into the format according to the requirements in accounting
7. Davis	College writing	Making decisions through accounting Reading to understand the rhetorical strategies and the ability to apply those strategies
8. Martin	College writing	Analyze the sources to form their own visions, and also consider alternative views in writing
9. Clark	Mechanical Engineer	Be able to create something new and realize it with their group partners
10. Carter	Sociology	To realize that what had been taken for granted is not certain; to ask questions.

Table 5: Chinese students' explicit conceptualization of critical thinking

Pseudonym	Major of study	Definition of critical thinking
Yan	Mathematics	Thinking skills (analysis of various perspectives)
Zhang	Political Science	Authentic and explorative study
Wanglan	Journalism	New perspective to see things
Changsu	Chemistry Engineering	Banality of Evil
Shaoxin	Chemistry Engineering	Being a thoughtful person in study and in life, stay on top of the learning, and ask questions.
Bing	Economics	Stating personal opinions about controversial issues in social science class.
Wuhao	Computer Science	Authentic and explorative study
Yi	Economics	Authentic and explorative study
Lin	Economics	Learning for himself and his career instead of grades
Miao	Accounting	Thinking skills (Analyze the problem and solve the problem)
Song	Mechanical Engineering	Being able to see things from various perspectives
Qiu	Mechanical Engineering	Thinking skills (Being able to consider a variety of perspectives when analyzing some issues)
		Accomplish something with logic, good planning, and effective decision making.
		Thinking skills (Analyze the problems and choose right principals)
		Authentic and explorative study

Chapter 5

THE (UN)IMPORTANCE OF CRITICAL THINKING

In this project, U.S. faculty members and Chinese students shared their perspectives on whether and how critical thinking concepts are important to college study, students' educational experiences, and even students' future lives after graduation. Most of the U.S. faculty members interviewed believed that critical thinking is important for the students' development in and out of school, but the Chinese students interviewed reported that critical thinking is NOT that important because university education does not involve that much critical thinking and the critical thinking developed in their classes does not apply to their jobs and future realities. These perspectives on the importance of critical thinking are influenced by faculty and the students' fields of study, as well as their definitions of critical thinking. The purpose of this chapter is to provide some insight into the value that faculty and students attach to critical thinking.

5.1 Faculty Perspectives

It may seem unsurprising that in all of the faculty interviews the professors suggested that critical thinking is very important, although there is some disagreement in terms of when the students should develop critical thinking. Three out of ten professors stated that students have to meet certain prerequisites before they can

develop critical thinking, while the other seven professors believe that critical thinking is important for every student at all times. The professors' discussions of the importance of critical thinking was often affected by their disciplines of study and their definitions of critical thinking.

Most of the interviewed professors stated that critical thinking was essential to their teaching goals as well as to their fields of study. For example, Professor Jones (Accounting) said that her course is "all about critical thinking." In her course, students needed to use their critical thinking (an analytical skill) to process information and produce a report:

(The students need to) see the standards, and then interpret this information in order to answer the questions...(the students have to) analyze the information and then put it in a certain format in which they either solve a problem internally for the manager or produce a financial statement. (Interview, 05/11/2015)

In Professor Jones' reflections, critical thinking was a domain specific skill in her class that was necessary to solve various problems.

Professor Ann (Economics) stated that critical thinking is not only necessary to be successful in her courses, but is also important for the students' future careers after graduation. Professor Ann offered an example:

One thing I've been doing is trying to give them (the students) some abstract problems...I am doing this on purpose because when you graduate, and you start to work, your boss is not going to tell you what to do...so the students need to use the help function and looking up things themselves...So that's critical thinking, an important skill to develop. (Interview, 05/15/2015)

Professor Ann sees critical thinking as an independent problem solving skill that is transferable to her students' future careers.

Professor Smith (College study) teaches a course entitled Critical Thinking I and Professor Davis (College writing) teaches a course entitled Critical Reading and Writing. Both courses were frequently recommended for freshmen as well as Chinese international students. Thus, teaching critical thinking is valued by the university and is an explicit part of the curriculum that professors are expected to teach, as these two professors stated in the interviews. Critical thinking is highlighted in the institution as an important skill for undergraduate learning.

Professor Smith also believed that the critical thinking skills taught in his classes are essential for students' success in all other university courses, although he thought the skill was not sufficiently addressed in some other courses:

My favorite class (to teach) is Critical Thinking I, really. *It is very-very useful for everybody.* University has required it...Students learn how to think, how to problem solve, how to make decisions, and often times, we do not teach that (in other courses). We expect them to do it but we do not teach them how to do it...(Interview, 04/16/15)

As a conclusion for this section, critical thinking is assumed to be important for all of the professors interviewed for this project although the professors defined critical thinking differently. Professors also specified that critical thinking is important for students' future careers, for meeting the institutions' explicit requirements, and for a variety of academic tasks in the interviews as this section demonstrates.

5.1.1 The Condition of Developing Critical Thinking

Unlike some of the interviewed professors who suggest that critical thinking can be developed with students across levels of courses, three professors believed that

students had to meet some prerequisite conditions before they could develop critical thinking in their studies. Professor Wilson (Chemistry) stated that

Critical thinking is not required for my entrance level chemistry course but was required for other higher level chemistry courses. In the lower level course, the focus is on learning fundamental knowledge and developing the skills needed to solve routine chemistry problems. At higher levels, the students have choices in terms of solving problems using multiple methods *which required making subjective judgments according to some reasoning*. The students' own judgment is essential in higher level chemistry class and critical thinking is *only important* at that point (Interview, 04/18/2015).

For Professor Wilson, critical thinking seems to have to be connected with students' subjectivity of choice making in solving advanced chemistry problems in my analysis. Therefore, knowledge with chemistry is the condition for students to use critical thinking in his class. "Students have to learn to walk before they can run," was the metaphor Professor Nath (Mechanical Engineering) used to explain why his general introductory engineering class emphasized learning basic mechanical engineering knowledge rather than developing critical thinking. (Interview, 03/02/2016)

Professor Young (Chinese History) said the students who struggled with basic writing assignments, attending class, or reading at a certain level were "below the level of discussing critical thinking with them." Critical thinking, which he defined as "deconstructing students' previous knowledge," is an essential goal of his teaching but students could only get there by attending classes and engaging with the reading and writing materials. Some of his students "didn't care enough to purchase the recommended textbook, needless to say comprehending the materials and think(ing)

critically about it.” (Interview, 04/16/2015) Critical thinking is an in-depth and deliberate reflection on one’s previous knowledge as well as readings.

In contrast to some professor’s perspectives that associate critical thinking with higher level courses, in educational literature there is a growing awareness for the need to develop critical thinking in high school or middle school math, science, and social studies classes (Swarts & Parks, 1994; Tindal & Nolet, 1995; Murphy et al, 2014). This is not to say that Professor Wilson’s (who said that critical thinking in chemistry had prerequisites) understanding of critical thinking is problematic, but that he had a different way of conceptualizing critical thinking than some literature which believes that critical thinking is relevant across courses and grade levels. However, for the three professors I quoted in this section above, critical thinking is not universal, but rather conditional, dependent on students’ prior knowledge and acquisition of basic prerequisite skills.

As a conclusion, all the professors interviewed for this project regard critical thinking as important although some professors felt that the students need to be at certain level of academic proficiency before focusing on developing their critical thinking. The professors who approach critical thinking from cognitive thinking skill perspective tend to regard critical thinking as universal and necessary for all students at all the levels. However, three professors in the interviews felt that developing students’ critical thinking is dependent upon students’ mastery of certain skills in their disciplines of study.

From the perspective of situated cognition, learning is not about obtaining knowledge but to participate in a discourse community (Swales, 1990). An capable person in a discourse community is able to make judgement and defend him/herself in the discourse community. Discourse community is constituted by professors, researchers and professionals who share much background knowledge about the field. It seems that for Professor Young, Professor Wilson and Professor Nath, the students have to join the discourse community first before they could focus on developing their capacity to make their own judgment and use their critical thinking.

5.2 A Student's Perspectives

Compared to the U.S. faculty members in this study who attached a high importance to critical thinking, the interviewed Chinese students did not seem to value critical thinking as much as their professors in their explicit answers. Depending on the students' fields of study, their personalities, and how they defined critical thinking, the Chinese students' attitudes towards critical thinking spread along a continuum from valuing critical thinking highly to very little. Most of the Chinese students felt critical thinking was important for specific courses and specific situations.

Zhang (Political Science) spoke to me excitedly about her experience at Westie University. She was pleased that critical thinking was a highlighted skill throughout her years of study:

I think in many courses that I have taken, the professors really nurtured my critical thinking... through dialogues with different professors, attending a lot of events and talks on campus, extensive reading... and that is why I really feel gratitude that I can study in this environment. *Every course I took gives me a different perspective to see things.* (Interview, 02/14/2015)

For Zhang, critical thinking is situated in her experiences being exposed to various perspectives through attending academic activities at Westie university and engaging in dialogues with different professors. As a student of political science, she valued critical thinking and saw the opportunities she had to gain new perspectives through interacting with professors and guest speakers on campus as nurturing her critical thinking.

Next along this continuum were the students (n=4) who believe critical thinking is important to some, but not all, the courses they took, specifically they saw critical thinking as important to courses in social science that they took for their breadth requirements. Those students recognized that critical thinking was important and nurtured in some courses because “the professors asked for the students’ opinions.” In comparison, the professors in other courses such as economics, business, science, and engineering focused on students getting the right answers:

Author: Do you think any of the courses you took at this university nurtured your critical thinking?

Changsu: *Yes, but mostly the courses I took for the first year. I took psychology and I took geography...In STEM (Science, Technology, Engineering and Mechanics) majors, you just do the work... You have to comprehend the principals in textbooks but you don't really think critically. It is all solving problems and you just try to get the right answers. In history and psychology, sometimes there are controversial issues, sometimes professors ask for your opinions. So critical thinking is more useful in social science classes. (Interview, 03/05/15)*

In Changsu's perspective, solving problems in STEM majors does not require critical thinking as the purpose of problem-solving is to get the right answers rather than

explore the problems. When Changsu expressed his personal opinions in social science classes, there was a sense of authorship. However, he did not feel such authorship in his STEM major when solving problems to get the right answers. Thus, these students suggest that critical thinking constitutes the expression of students' personal opinions and authorship.

Despite Changsu's interests in social science classes and in authorship as critical thinking, Changsu justified his decision of choosing a STEM major by saying:

I actually really enjoy the courses in breadth requirements, in this university. It exposed me to a lot of things. I actually had considered this thoughtfully (Whether critical thinking nurtured in social science class is important to me or not): I think breadth requirement really improve me as a person, my knowledge about art and culture, and my understanding about the society. STEM major is [about] external [values]. You might improve the world, if you are lucky...*I enjoy being able to improve myself and my critical thinking, but it doesn't generate material value directly.* I came to the U.S. to acquire the expertise in science and engineering. *That expertise is important for my career.* To find a job you need to "improve the world"... you need to be valuable to the world. (Interview, 03/05/15)

Changsu pointed out that he enjoyed the breadth requirement course which "improved" him. However, critical thinking is not as important in his studies because in his major, solving problems does not involve critical thinking (i.e. authorship of opinions). Changsu did not recognize that critical thinking might be important for his future job in STEM. According to him, STEM is not about personal opinions or characteristics, rather it is solving problems for others. Therefore, it is more important to be able to solve the problems and be valuable to the world than enjoying ownership of opinions and characteristics. For Changsu, critical thinking is specifically situated

in social science disciplines and personal development, rather than problem-solving in STEM project.

I found Changsu's opinion contradicts many of the assumptions about critical thinking in educational field. For instance, it contradicts the idea that critical thinking is the goal of education and should be sought after in teaching and learning rigorously (Arum & Roksa, 2011). The limits of critical thinking that Changsu had described might be explicated in Turner's (2004) study which pointed out that Chinese students do not understand the importance of critical thinking in Western university as the underlying requirements for many academic tasks. However, I found such difference could be attributed to how critical thinking was defined by faculty and students. As I demonstrated in the last chapter, problem-solving was regarded as critical thinking by some faculty. However, in this chapter, the Changsu did not regard problem-solving as critical thinking.

Changsu's opinion that critical thinking was especially relevant and important for social science classes was contradicted by Wuhao (Computer Science), who thought that expressing opinions in social science classes was not critical thinking because there might not be an authentic exchange of opinions. This is another type of perspective about the importance of critical thinking; that is, that critical thinking may not be important for any classes. When I raised the question whether critical thinking might be important in some social science classes, as the instructor might ask for the students' opinions, Wuhao couldn't see that critical thinking could be relatable to social science classes. According to him, even when the instructor asked for the

students' opinions, stating one's opinions did not constitute critical thinking if those opinions were not challenged.

Wuhao commented on his experience with a social science project:

Author: Do you think critical thinking is important for the classes at this University?

Wuhao: *Not at all. We just attend the classes, do the reading, do the work.*

Author: Do you think critical thinking is important for some of the social science class you took in this University?

Wuhao: *How is critical thinking connected to social science class?*

Author: *The professor may talk about your opinions in social science class?*

Wuhao: *Yeah, but those questions are controversial any way, you either agree or disagree (with the professors' opinions). The professor understands about that (you might have disagreement with the professor). And you don't have to agree with the professor. (Interview, 01/06/2016)*

In Wuhao's opinion, in some social science classes, when different opinions do not challenge or dialogue with each other, they do not involve critical thinking. Wuhao probably defined critical thinking as "challenging his previous assumptions," like some of the students in the previous section (although it was not explicitly stated in the quotation above). Thus, Changsu and Wuhao attached disparate importance to critical thinking due to their different experiences with the courses.

In the following example, Bing described another interpretation of the importance of critical thinking. Bing considered that critical thinking is important to some of the courses, but could not transfer from the classroom to his real life. Bing explained that in business classes the correct answers were objectively defined. In real life, the correct answers were not objective, but consequential. Therefore, decision making in a business class does not transfer to decision making in real life.

Author: Do you think critical thinking is important to your classes?

Bing: Yes, some of the courses we took taught us decision making method. Critical thinking is important there... but decision making in classes and decision making in real life are really different... I don't really use those methodology (of decision making in life), it is just too much work. (In real life), when there is a problem, you solve it, every choice you made has a consequence. You just have to stick with your decision. You can't go back and forth... so in real life, *decision making is really about living with the consequence while in business class, decision making is choosing models.* (Interview, 04/10/2015)

Thus, Bing recognized that critical thinking is important to some of the classes he took but he did not consider critical thinking as a decision making skill learned in education transferable to his daily life. Bing felt that the decision making skill learned in Business classes is specific to the class contexts.

Not all of the Chinese students interviewed thought that the classes in Westie University lacked critical thinking. In the previous section, authentic and explorative projects were discussed as critical thinking. The Chinese students emphasized that in the design projects, they “learned to do real research” and were “trained to explore something”. Thus, critical thinking embedded in the design project was important for both their classes and future careers.

The Chinese students demonstrate a range of perspectives on the importance of critical thinking. This range is influenced by the students' conceptualizations of what counts as critical thinking, as well as their fields of study and experiences at the university. Such a range of perspectives also demonstrates that many controversies over critical thinking exist not only among educational scholars (e.g. Johnston et al., 2011), but are also evident in student conceptualizations of critical thinking and its

value. The Chinese students interviewed, overall, did not seem to put as much value on critical thinking as their U.S. faculty.

5.3 Conclusion

An overall display of the views by faculty and students on the importance of critical thinking is presented in Table 5. Generally speaking, the U.S. professors rated seem to place more importance on critical thinking than the Chinese students in this study. Some of the professors explicitly stated that nurturing critical thinking is a goal of their teaching and important for students' future careers; however, in some Chinese students' perspectives, critical thinking is only seen as important for a few courses and may be not important for their future career at all. The Chinese students' discussion of the limitedness of transferring critical thinking from class assignment to their life and future work do not necessarily mean that the students take a situated cognition approach. In my analysis, the college students in business, economics and engineering disciplines are not aware of the various psychological or educational theories. The professors were not aware of it either. However, the professors might have been influenced by institutional requirements or circulated discourses that highlight critical thinking in college education. Furthermore, as the professors tend to emphasize cognitive thinking skills in their discussion of critical thinking, the professors are more likely to focus on critical thinking as transferable to various disciplines that the students are studying and to the students' future career. Finally, I think it is also possible that faculty members value critical thinking because they hope that they can

help the students built up their skills and thus, their teaching can have a far reaching influence on students. However, it is hard and impossible to achieve far-reaching effect during teaching and thus, students only felt that their critical thinking was nurtured in particular courses and situations.

Overall in this project, while educators are predisposed to consider critical thinking as transferable to different situations and having far-reaching influences, the students' reflections on critical thinking tend to focus on the limitations of applying critical thinking concept outside classes. In students' perspectives, critical thinking was invoked when their learning involved students' previous experiences, assumptions or career and life outside schools. However, according to their discussion in this section, many of their academic experiences failed to involve their experiences and life outside school.

So far, I have discussed explicit conceptualizations of critical thinking and the value that faculty and students attach to critical thinking; in the next chapter, I discuss critical thinking as specifically connected to the Chinese students learning in a Western university through the professors and the students' reflections.

Table 6: Importance of critical thinking in U.S. faculty's perspective

Pseudonym	Discipline	Importance of critical thinking
1. Ann	Economics	Very important Important for the course and for the students' future career
2. Smith	College Study	Very important Institution requirements My course has "critical thinking" in its title. Important for students' success for all courses
3. Yang	Chinese History	Only important after the students could meet certain perquisite requirements
4. Nath	Mechanical Engineer	Only important after the students could meet certain perquisite requirements
5. Wilson	Chemistry	Only important after the students could meet certain perquisite requirements
6. Jones	Accounting	Very important My course is all about critical thinking.
7. Davis	College writing	Institution requirements My course has "critical thinking" in its title.
8. Martin	College writing	Very important My course has "critical thinking" in its title. I have been writing and researching about this topic for years.
9. Clark	Mechanical Engineer	Very important My course is all about creativity and problem-solving.
10. Carter	Sociology	Very important Critical thinking is crucial for liberal art education.

Table 7: Importance of critical thinking in Chinese students' perspectives

Pseudonym	Major of study	The importance of critical thinking
Yan	Mathematics	Important in argumentative writing and a design-study
Zhang	Political science	Very important
Wanglan	Journalism	Very important
Changsu	Chemical Engineering	Only important for social science class to fulfill breadth requirement
Shaoxin	Chemical Engineering	Very important in various courses
Bing	Economics	Very important
Wuhao	Computer Science	Only important for his own business outside school
Yi	Economics	Only important for certain courses, not for life outside academia
Lin	Economics	Very important
Miao	Accounting	Only important for certain courses, not for life outside academia
Song	Mechanical Engineering	Only important for social science class to fulfill breadth requirements
Qiu	Mechanical Engineering	Only important for social science class to fulfill breadth requirements

Chapter 6

CHINESE STUDENTS IN A U.S. COLLEGE

In this section, I discuss the critical thinking concept as it relates to Chinese students' experiences as study abroad students in the U.S. When I asked faculty members whether Chinese students demonstrate critical thinking of a different nature or different capacity as compared to their U.S. counterparts, the U.S. faculty stated that Chinese students tended to be very quiet in class discussions, appeared to experience difficulties writing academic papers, and did not perform well on creative problem solving tasks although they also came to know a few Chinese students who were able to present their ideas creatively in class discussions, writing, and problem solving.

I first discuss the faculty perspectives on some of the challenges that Chinese students face studying abroad which tend to attribute those challenges to Chinese students' lack of critical thinking among some other reasons like insufficient language proficiency. However, there is a gap in terms of how U.S. faculty and Chinese students interpret their challenges. While there is a lack of explicit connections between the Chinese students' reflections on their academic experiences and critical thinking (decontextualized critical thinking skills and disposition), I interpret that from Chinese students' perspectives, safety to express their opinions, the value of their experiences and ideas, cultural differences in the conventions of interactions between East and West and linguistic differences are more important for them to cope with the challenges rather than cognitive thinking skills.

6.1 Critical Thinking in Western Educational Culture

In this section, I present the U.S. faculty members and Chinese students' discussions of some difficulties that Chinese students face while studying abroad. The faculty and students agreed that Chinese students have difficulties in terms of class discussions, academic writing, and creative problem solving although most of the faculty also mentioned that they had known a few outstanding Chinese students who did not seem to experience those difficulties.

6.1.1 Lack of Critical Thinking in Class Discussion

In several faculty interviews, when I asked if Chinese students demonstrated critical thinking of a different kind or capacity as compared to Western students, the professor stated that Chinese students appeared to be reticent compared to U.S. students in their classes. Differences between Chinese and Western cultural practices have been dissected in literature to explain the reticence of Chinese students in the Western classroom (Cheng, 2000; Heng, 2015). In this first section, I examine some of the faculty and students' perspectives that attributes Chinese students' reticence in class discussions in Western universities to the Chinese students' lack of critical thinking.

Before I mentioned about class discussions in my interview with Professor Smith (College study), he explicitly commented that Chinese students tend to be quiet in class and do not often state their opinions in his course entitled "Critical Thinking". In the following quote, Professor Smith attributed Asian students' silence to their language proficiency at first, but when he further developed his observation, it seems that he was referring to a particular way of being quiet—not stating disagreement or criticism.

One thing I found, the international students, specifically Asian students, tend to be very quiet in class. Perhaps it is because (they are) not so comfortable with the language, but they don't express their opinions as openly, and if they disagree, they are not so quickly to stand up.... they do their work, and they listen to us, but they don't raise their hands and say I disagree. *Maybe that is a cultural thing. They are taught not to criticize.* (Interview, 05/19/2015)

While Professor Smith defined critical thinking as “analyze topics and evaluate sources” (Table 6) in his explanation of critical thinking at the beginning of the interview, when discussing Chinese students’ critical thinking, Professor Smith focused on the students’ willingness to express their opinions, especially disagreement, with the professors and other students. Following, Professor Smith shared his theories as to why Chinese students do not participate in class discussions.

I think they (the Chinese students) are not encouraged to speak out, they are not encouraged to challenge, the authority. Here in the U.S. I *encouraged my daughters to challenge the authority.* They live in Hawaii and there was a government construction going on... my daughter built a Facebook page protesting it and my grandchildren 4 and 8 years were with her there in the protest. I think in China, was it 1986 or 1987 in Tiananmen square when the Chinese students rise up and said we have the right to question. (The government said to the students) No you don't. (And the students said) Yes, I do. If you give me a satisfactory answer... That's the whole thing. *You have to question the authority... You have to ask a lot of good questions.* (Interview, 05/19/2015)

Professor Smith hypothesized that Chinese historical context, for instance, the Tiananmen Square Protest in 1989, influenced Chinese students’ willingness to express disagreement with authority, and thus demonstrated critical thinking. The Chinese students were raised in a political regime that did not encourage open discussion of controversial topics, especially those that went against authority. However, it seemed that although Professor Smith attempted to understand Chinese students by considering the historical background of modern China, his understanding of critical thinking was situated in the Western context: he expected Chinese students

to openly express their disagreement with authority like his daughter who was brought up in the U.S. Since the Chinese students were reluctant to express themselves, such reluctance might be interpreted as Chinese students lacking opinions and, therefore, critical thinking.

However, Professor Smith's perspective that Chinese students were influenced by their social and cultural backgrounds was disputed by two professors in this project who observed that "the Chinese students are very similar to the U.S. students today" (Interviews with Professor Davis, 05/16/2015 and Professor Young 04/16/2015).

Recent literature about critical thinking in Chinese contexts has also confirmed that "China has changed" (Dong, 2015), and "A society of individualism has come upon us" (Xu, 2009 as cited in Dong, 2015). Recently Chinese students have grown up in a commercialized world eager to pursue their own, largely material, happiness, rather than the honor of their community as was reported decades ago.

Overall, while there was discussion with the interviewed professors in this project as well as the literature which suggest that there are complexities in attributing Chinese students' lack of class participation to Chinese cultural influences, some professors interviewed in this project attributed the students' lack of class participation to the students' lack of critical thinking.

6.1.2 Lack of Critical Thinking in Writing

The difficulties with academic writing were mentioned by all five professors whose course requires extensive writing, when I asked them to comment on Chinese students' critical thinking. Academic writing is used in many U.S. courses, especially humanity courses, to enhance assigned reading, extract arguments, promote skills in evaluating positions, and apply the theories and content learned in the course to the

students' own lives; i.e., to develop student critical thinking (Canagarajah, 2015; Fishman & McCarthy, 2004). However, interviewed professors discussed possible methods to improve students' critical thinking in writing in two major ways: (1) Some professors suggested that students' writing could be strengthened by understanding Western conventions of academic writing; and (2) some professors believed that students' critical thinking in writing could be improved by promoting students' interaction with various perspectives in writing.

It is important to note that literature discussing writing in a second language does not always single out Chinese students in terms of the difficulties they faced with critical thinking. Second language writing literature tends to discuss non-native speakers as a whole rather than specifically focusing on Chinese students (Dunn, 2008). In the interviews, Professor Young (History) and Professor Martin (College writing) mentioned that the difficulties which Chinese students experience in academic writing are also shared by many others, such as first generation college students, African American students, Hispanic students, and international students from countries like South Korea and Saudi Arabia who are unfamiliar with academic genres in the U.S. However, the majority of non-native speakers at Westie University campus are Chinese students. Professor Martin (College Writing) said that "the non-native students' writing difficulties are often seen as Chinese students' writing difficulties" (interview, 03/04/2016). Interestingly, it seems that middle class white native English speakers are exempt from writing problems in the professors' discussions in this project. According to situated cognition theory, the discussion of academic writing conventions and writing challenges is not neutral. Some populations

are privileged due to their ways of speaking, which enjoy a higher status in society (Gees, 1986).

Students' academic writing ability is often regarded as a demonstration of critical thinking (e.g. Arum & Roksa, 2011; Bean, 2011; Canagarajah, 2015; Dunn, 2008; Liaw, 2007). Many universities in Western countries name their writing programs 'critical writing programs' (for instance, University of Pennsylvania, University of Leicester, University of Columbia, University of Toronto, just to name a few).

Situated in Western academic contexts, critical thinking entails developing the skills to analyze a topic, critique and evaluate sources, form one's own stance on controversial issues, and a variety of other skills as Professor Smith, Professor Martin and Professor Davis stated in Chapter 4. Professor Martin (College Writing) commented on Chinese students' difficulties with writing by referring to some of the elements in his critical thinking concept:

This idea that what you say need to be backed up by evidences and support, and from that evidences and support, in a way what you are doing is you think about the background, *you develop your argument by critiquing and evaluating the sources*. And that's something that I found is completely difficult to them (the Chinese students)... (Interview, 03/04/2016)

Thus, some Chinese students seemed to have difficulties in critiquing and evaluating sources and backing up judgment or opinions with evidence and support when writing argumentative papers. Many of these skills are consistent with the cognitive approach to critical thinking (Bloom, 1956; Ennis, 1993; McGuiness, 2005; Philips & Bond 2004; Scriven & Paul, 1987; Tsui, 1998).

Professor Davis (College Writing) also defined critical thinking as cognitive thinking skills. In his description of teaching critical thinking in college writing, he

proposed ways to develop Chinese students' critical thinking through using a critical thinking model and explaining Western education conventions to the students.

According to Professor Davis, many Chinese students "had an 'aha moment'" when they learned about a critical thinking model that offered more structure to students' analysis and writing.

In critical thinking, we talk about levels of understanding. What is it that you are trying to argue, in other word, what is the problem?...How do you know it is a problem? How much do you know about it? Who cares about it? And then, why is it important? It encourages development, and it creates the need for the language, versus without that, it is just vapid *advantages and disadvantages*, recycling of memorized expressions, blah blah blah... *Many of them had an 'aha moment' when they start writing like that [with the way to develop paper suggested by critical thinking concept].* (Interview, 05/16/2015)

Critical thinking as a tool for structuring argumentative writing helped Chinese students develop their thoughts. However, from a situated cognition perspective, tools enable thought and intellectual processes, but also constrain or limit that thought as tools also provide powerful means of transmitting culture (Wilson & Mayers, 2000). It is also important to reflect on the practice of teaching Chinese students the academic conventions of argumentative writing. As critical thinking could also be defined as students' experiences with explorative studies, students' reflections on their own perspectives, and even creativity, is writing according to pre-existed model enough for demonstrating students' critical thinking? From the perspective of situated cognition, writing involves a series of external factors (Matusov & Soslau, 2010). For instance, when the students write to fulfil their own desire to express themselves rather than institutional requirements, the writing task might become more authentic and creative. In argumentative writing, it is also important that the students feel empowered to criticize others' opinions.

Following is an example in which the professor helped students to interact with various perspectives in writing. Professor Davis (College Writing) said:

And so for some people, you have to help them find a topic that makes them take a position. *They realize what seems factual isn't established, is not agreed to or is not really known.* So, in this way they can develop a sense of critical thinking in terms of their own personalities. (Interview, 05/16/2015)

Professor Davis' guidance attempted to help students realize their audience and empower students. In this case, writing is not about applying cognitive skills to evaluate the sources or Western academic conventions, but rather "a sense of critical thinking in terms of their own personalities;" in other words, students develop their authentic voices in argumentative writing. Thus, critical thinking is situated in the students' capacity to establish their own voices in writing. As Roth & Jornet (2013) suggested, the purpose of the activities shaped the thinking process: whether the students write to fulfil institutional requirements or whether the students felt an authentic need to express themselves. This is also supported by the studies of voice in writing, Canagarajah (2015) and Fishman and McCarthy (2004) presented studies in which by helping an ESL student become more aware of the tensions and possibilities among the diverse components of the issues in writing, the professors helped her with voice construction which improved the critical thinking in her academic writing.

In this section, I discussed U.S. faculty's conceptualization of critical thinking as related to Chinese students' writing. Critical thinking can be related to Chinese students' writing in two ways, (1) as a tool that explicate Western culture of academic writing and transmit such culture from the teachers to the students, and (2), as students' authentic voice as writers.

6.1.3 Difficulties with Creative Problem Solving

Besides having difficulties joining class discussions writing academic papers, Chinese students and U.S. professors also found problem solving in economics, science, and engineering classes challenging for the Chinese students, especially when they needed to work collaboratively with American students.

As discussed previously, not all problem solving in science and engineering projects or across courses was connected to critical thinking. Professor Nath said that his class did not emphasize critical thinking because he was teaching an entry level engineering course and therefore, “the students did not invent the principle, the problem or the problem solving strategy” (Interview, 03/02/2016). In other words, critical thinking was connected to creative problem solving in the context of more advanced courses or concepts from Professor Nath’s perspective.

Literature comparing Chinese and American students shows conflicting results on Chinese students’ proficiency in solving open-ended/creative problems. Some studies report creative problem solving as a strength of U.S. students in elementary math classes compared to Chinese students (Cai, 1997; Cai & Hwang, 2002), while others report that Chinese students were able to pose more creative problems than the U.S. students and suggested that this indicates strong creativity among Chinese students (Harpen, 2013). In this study, both professors whose teaching involved creative problem solving mentioned that they found that Chinese students had difficulties dealing with creative problem solving as compared to Western students.

Senior design projects were mentioned as demonstrations of critical thinking by the Chinese students. While the Chinese students with experience working on senior design projects talked about them as authentic, interesting, engaging, and rewarding, Professor Clark (Mechanical Engineering) commented that Chinese

students tended to perform unsatisfactorily in design projects when compared to their performance in more theory based classes:

I do think there is the difficulty with critical thinking skills. I teach two classes. One of the classes is more theory based, math based. It is basically physics. The Chinese students are doing quite well in that course, they are doing wonderful. The other one is a design class, so they need to create something new, something that was never been created before...for instance, this group of students work with an Early Childhood Education Program to design a new toy appropriate for certain age, and they have to design it and solve some problems to realize it...Now, that class is a real challenge for the Chinese students...In the theory based class, you see Chinese students getting much more "A"s than in design class. Their (Chinese students)' peer evaluations, are just not good. It might be just they have never done such projects before when they were in China. (Interview, 04/02/2016)

Problem solving in the group project which required creativity was difficult for the Chinese students while they seemed to have fewer problems learning the principles of physics. It seems that Professor Clark conceptualized critical thinking to entail creative problem solving, as a different skill than learning the principle concepts of physics. Although it is hard for Professor Clark to pinpoint what exactly was difficult about creative projects for the Chinese students, she attributed such difficulties to Chinese students' lack of similar experiences when they were in China.

In terms of cooperating with U.S. students, Professor Nath expressed his expectations that students from different cultures should cooperate with each other:

I mixed Chinese students with American students in group projects. You are studying abroad. It is not just about engineering knowledge; it is also a cultural experience... If you only sit with your Chinese friends, when it is your third or fourth year studying here, when are you going to talk to Mike, or Tom? (Interview, 03/02/2016)

From the professor's perspective, the studying abroad experience is also a cultural experience. Chinese students were expected to mingle with U.S. students while studying at Westie University. Although he was not explicitly talking about critical

thinking, the Chinese students' experiences in group work were associated with Chinese students' performance in design projects. The way in which the students cooperate with American students influenced how the Chinese students accomplished various tasks, which are reflections of Chinese students' critical thinking as Professor Clark said in the case above.

In this section I discussed how discussions of critical thinking intersected with discussions about the challenges that Chinese students experience at Westie University. At least two professors discussed critical thinking as associated with the Western expectations about students' courage to express their opinions and disagree with the authority and suggested that Chinese students have difficulty meeting these expectations. The professors whose courses involved academic writing tended to situate critical thinking in students' ability to evaluate sources and support one's opinions in writing, as well as in Western conventions of academic writing. However, the Chinese students seem to fall short of the professors' requirements. Finally, the professors who teach engineering and design courses situate critical thinking in design projects in which the Chinese students had difficulty cooperating with U.S. students in creative problem solving.

This section presented U.S. faculty's perceptions on some of the challenges that the Chinese students faced in Western university; in the following section, I discuss four themes that emerged from the Chinese students' discussions of the challenges they faced while studying in a Western university.

6.2 The Chinese Students' Perspectives on the Challenges They Faced

As I discussed in previous sections, the Chinese students in this project expressed that the importance of critical thinking on their educational experiences is

limited. Partly due to the fact that Chinese students' definitions of critical thinking tended to be associated with explorative studies and reflections on students' studying abroad experiences, critical thinking was only invoked in specific situations in Westie University. U.S. faculty tended to associate some of the challenges that Chinese students faced with critical thinking concepts. However, in some of the Chinese students' explicit reflections, the critical thinking concept is missing from their deliberations on class discussions, academic writing, and creative problem solving. Instead of talking about critical thinking, Chinese students' reflections revealed four themes that affected their writing, class discussions, and creative problem solving in the university: (1) Their examination of when it is safe to express themselves; (2) whether Chinese students' voices and experiences were valued in the curriculum; (3) the differentiated academic conventions between East and West; and (4) English language proficiency. I discuss how educational, interactional, and linguistic contexts affect each theme. At the same time, the Chinese students' discussions about critical thinking and the successful experiences reflects some educational practices that might be helpful for improving Chinese students' experiences in the Western universities.

6.2.1 Safety to Express Oneself

The faculty's impression that Chinese students tend to be reticent in class discussions was agreed upon by Chinese students in this project. Most of the Chinese students in the interviews (n=10) confirmed that they do not often participate in class discussions.

Changsu (Chemical Engineering) confirmed that he was a quiet student: "I probably adhere to the stereotype about Chinese students. I study all the time and I do not workout. I am good at math, and *I do not speak in classes.*" (Interview, 04/08/15).

In the last section, I discussed a professor's perspective that historically and culturally, self-expression in China has potential dangers which might affect Chinese students' motivation to express themselves in the U.S. university classrooms. While there were also professors who disagreed with such perspectives, the students' perspectives add some complexities to the discussions of the safety to express themselves in a U.S. university classroom.

In the following example, Yan (Mathematics) said that she was a quiet student in class as well. She would only speak when she was very sure about an answer, and at the same time, when there were no other students raising their hands. In my interpretation, this was a strategy to make sure it was safe to express her opinions.

Author: Do you usually speak up or express your opinions in the class?

Yan: Very rare. I don't like speaking up in the class. I am afraid of making mistakes in the class. *I only speak when I am very very sure about the question. When I am very sure about an answer, and there were no others that wanted to answer this question, then I would raise my hand.* (Interview, 04/05/2015)

When a professor asks a question and no other students raise their hands to answer, the teacher might be grateful for Yan's input. It is also possible that when no other students wanted to answer the question, the professor would have a lower expectation about the answer, and thus, it is safe even if Yan's answer was not perfect. This can also be a gesture of humbleness, avoiding competition with other students to get the teachers' attention by answering questions in the class. Yan's critical thinking was not situated in her courage to answer the teachers' questions or express her disagreement with the teacher, but in her critical examination of the situations in which it is safe to express her opinions.

Miao (Accounting) provided elaborate strategies she used to ensure it is culturally safe to express herself in class:

Author: What do you think is important to be successful in Professor Young's class?

Miao: *First of all, you need to sit in the first or second row... The good thing about it is, if you raise your hand, it is easy for the professor to spot you as soon as you raise hand when you have questions. Another good thing about it is that all the students sit behind you, so when you talk, answering the question or asking the question in class, you don't need to worry about embarrassing yourself. They can't see your face, they are behind you. And I don't need to see their face. If I sit at the back, they all turn around to look at me when I speak, that, that felt like I am talking to a crowd, and it is very stressful. So, I don't feel stressful sitting in the first or second row. So at the beginning of the semester, I went to each classroom very early to make sure I get a first row seat. (Interview, 04/15/2015)*

For an American professor or American students, they are used to a social and educational culture where speaking in class is a way of participating and is nothing to be embarrassed about, as some professors expressed in the interview. However, Miao regarded it as embarrassing when speaking in front of a crowd, even when she was aware of the importance of it. Durkin's (2008) study reported similar experiences by Chinese students who were studying in Britain. However, some of the Chinese students in Durkin's study developed a "middle way" of dealing with conflicts between the Eastern and Western cultures of class participation. For instance, the students would express their disagreement with language that demonstrated their understanding and concern for people they disagreed with. Similarly, Miao's critical thinking imbued in her strategy to balance the Asian culture's value of silent participation and the Western culture of encouraging self-expression.

Lin (Economics) described her personal experience in a Women's study class. She examined her own opinions and asked her classmates' opinions first before she went to the professor.

Author: Have you ever wanted to challenge your professor in women's study or sociology?

Lin: Women's study...first of all, I am not familiar with this, I had never learned anything like that, it is not what I thought it would be. When I have a disagreement with the professor, *I tend to examine myself, maybe ask some classmates' opinion first before I directly go to the professor.* (Interview, 09/20/2015)

While U.S. professors might expect students to explicitly bring up disagreements so that the whole class can examine various opinions, test hypotheses, and benefit from the discussions, Lin examines her own opinions first and discusses them with friends before bringing it up to the teachers. There is a difference in terms of what is considered "safe" in Chinese and Western cultures. The Chinese students in this study suggest that they consider multiple dimensions of the cultural context when considering whether it is "safe" to ask questions or express disagreements: faculty's evaluations of the students, peer students' opinions on them, and how their knowledge and identities are reflected in the class participation. The importance of "safety" to express one's opinions was discussed by authors who write that learning is joining the community of practices and thus, to promote learning, it is important for the teachers to build the classes as a safe space for the students to express themselves (Rogoff, 2003).

In conclusion, across disciplines, Chinese students appeared to be reluctant to express their point of view in class discussions, especially when they disagreed with the authority's opinion. Although this is interpreted by some of the U.S. faculty as a demonstration of Chinese students' lack of critical thinking, from Chinese students'

perspectives, their expression of critical thinking in the U.S. colleges is impacted by their own critical examination of the classroom context and by their assessments about whether it is safe to express themselves or not.

6.2.2 The Value of Chinese Students' Experiences and Ideas

Besides the struggle of whether it is safe to express themselves or not, Chinese students also talked about whether their opinions and experiences were valued in the class community or not. Three Chinese students expressed in the interviews that their major challenge with writing was that “they had nothing to write” while other Chinese students proudly described to me their successful stories. In my analysis, those Chinese students felt successful in two ways; one, they perceived their opinions were welcomed by the faculty and peer, and two, their Chinese backgrounds provided fresh perspectives for their writing and class participation.

From a situated cognition perspective, learning tends to be characterized as effective participation in practices of inquiry (Greeno et al, 1998). The class can be regarded as a community of inquiry; feeling that their opinions and perspectives from Chinese backgrounds were valuable in the community might contribute to the students' participations in Western universities.

Yan (Mathematics) said the assignments that required her to write about her own point of view were the most difficult for her, especially in her Chinese history class.

I don't have my point of view, that's the problem. I really really suffer when writing a paper. I have borrowed some books from the library, because it is required that we read some books and had certain amount of references, and I don't mind reading. But I still have nothing to write.... *Why would I express my opinions on political and economic issues? Who am I? I am not that bored...*

Writing papers is like the darkest memory of my college life. (Interview, 04/05/2015)

The prompt for the essay in the history class that Yan discussed was, “For the last decade, how does Chinese economic development influence its policies of foreign affairs and its position among the world powers?” Yan spent five pages arguing that the Chinese economy had developed tremendously since the previous decade. She listed several reasons from a few different sources, including websites, books, and journals, to support the point that the Chinese economy had grown tremendously, as was required by the professor. However, she did not make any connections between those sources and the topic: China’s foreign affair policies. In fact, her paper did not mention anything about foreign affairs and China’s position in the world.

In my analysis, Yan might not lack the ability to make a judgment on political issues, (as she discussed political issues with me in the interviews informally); however, she was not comfortable doing so as she questioned her own qualification to comment on the social and economic issues (she said in the interview, “Whom am I?”). Yan was not used to seeing her personal opinions on social and economic issues as worth expressing. In the U.S. college, it is assumed that the students demonstrate their ability to make judgments by writing about controversial issues and expressing their subjective opinions supported by reasons and historical facts (McGuinness, 2005). Thus, Yan might be perceived as lack of critical thinking in writing this historical paper when she could not perceive her opinions and experiences being valuable for the class community.

Wanglan (Journalism) reflects on her realization that U.S. classrooms have more freedom for students’ opinions on controversial issues than Chinese classrooms. Seeing an American student talking about a sensitive and possibly even dangerous

topic, from her perspective, showed Wanglan that the class community in the Western university is different than the community in China.

American undergraduate students really are *fearless* in making judgements and in expressing their own opinions. One of my classmates once made a speech about racism in America in a class, she wrote about the criminal law and something, in every three black people, one person had the experiences of being in jail. She is “black” and most of the people in the audience are “white”. But she could discuss this issue in front of the public. *I really admire her. I wrote about the discrimination of Chinese people before but if you ask me to say it in public, I don't think I can.* If you ask me to make a speech about what I just told you, I can't do it. *I think I need to learn from them, I think this is a good thing to learn.* (Interview, 04/05/2015)

Wanglan commented that the American students’ participation was “fearless” and in comparison with the American students, “I don't think I can (speak in public like the American student).” Wanglan does not lack the intellectual ability to think about the complexities of social issues but she was brought up in an environment that did not encourage discussion of controversial topics. Furthermore, she expressed her willingness to adapt to the American class community as she said she needed to “learn from the American students”.

Chinese student Zhang (Economics) described a successful story where in one class, she was “brave enough” to ask any question. As a result, she felt other students and professors in the classroom “loved her”. Being in the community of the class and feeling that her class community welcomed her opinion, Zhang became brave enough to share her opinions: “So I took a class called Southwestern American history... *I was brave enough to ask any questions...so they (the U.S. students and the professor in the class) loved me.*” (Interview, 03/02/2016)

Zhang stated that when expressing her opinions in that class, “I was brave enough to ask any questions.” For Zhang, asking questions in an American class was

about courage and bravery. Seeing that her classmates and her professors loved her provided a welcoming educational environment that contributed to her bravery. From the perspective of the Chinese students, being able and willing to speak in class was discussed in terms of whether they perceived the environment as safe and welcoming or not, rather than about a critical thinking skill. Sociocultural perspectives of teaching emphasize that building the class environment as a community is essential for the students' experiences (Matusov, 2009). Zhang confirms that certain elements of the class community (being appreciated, feeling like she can take risks and be brave) are critical for her to be able to raise critical questions and contribute to the class.

In the following quotation, Yi more specifically expressed that feeling like she could contribute to the learning in her class community encouraged Yi (Economics) to participate in class discussions.

While I saw that the American students are all making very meaningful observations in the (class) discussions, *I learned so much from just listening to them, so I thought they should also learn something from listening to me. I have something to share too...* That really motivated me to join the class discussion. (Interview, 03/02/2016)

After seeing how the American students made meaningful observations and learned from her classmates, Yi realized that all the students' experiences and voices were respected and valuable for the class community. She felt a true need to share her voice so that everyone in the community could learn from her. In this case, Yi demonstrates that for Chinese students to display critical thinking in class participation, the Chinese students need to consider the educational environment, specifically whether there were welcoming communities for the students to join in discussion and other class activities.

Besides seeing a class community as welcoming, the Chinese students described another way of understanding that their voices and opinions were valuable to class discussions and their writing: when their unique cultural practices and experiences are valued. In the following examples, critical thinking is situated in educational environments that value the Chinese students' cultural backgrounds as an asset.

Chinese student Zhang (Economics) described a Southwestern American history course she took. In the course, she was able to make unique contributions to the group discussions because her knowledge about Chinese culture was valued as she compared Chinese cultural practices to the Native Indian cultural practices and asked meaningful questions (Interview, 03/02/2016). The following quote was mentioned in the section above, but this section has a different emphasis than the previous section.

So I took a class called Southwestern American history...I am not sure why, *but for all five Indian reservations we visited, I could find some connections between the Indian culture and Chinese culture.* For instance, someone sang us some songs in one reservation, the music, the rhythm, and the music instruments they used, the vocal, really similar to some folk songs in China. So I asked them why was that? They couldn't answer that but I thought it is because of migration?...(Interview, 03/02/2016)

Zhang discovered similarities between the Chinese folk culture that she was familiar with and the cultures at Indian reservations that she visited and that were central to the curriculum of the course she was taking. She "could ask questions that none of them (the U.S. students in the class) could think of" because of her unique cultural knowledge and experiences as a Chinese student. Her contributions were valued in the course, and thus, she could participate and enhance the course by joining discussions.

Chinese students described that when their unique Chinese experiences and perspectives were valued in a class, fulfilling the writing requirement became easier as

well. In the following example, Wanglan (Journalism) reported that her writing about stereotypes of Chinese students on campus that she had personally experienced received positive feedbacks from her classmates.

Writing is not hard for me. You can always write from the Chinese perspective. I am the only Chinese person in the major, they (the American students) were often amazed by what I wrote... The professor usually read a few essays before each class so that day he read my writing, the whole class was amazed (by my writing). I just wrote some daily life things, me and my roommate... I drink warm water because of the Chinese habit, she looked at me like I am a weirdo and when I am in the restaurant, the waitress often gave me that look when I ordered warm water. Like on campus, many people thought Chinese students are rich and do not work hard. For me, that's a stereotype. What I wrote is a perspective that they (the American instructor and peers) had never known before and they loved it. (Interview, 04/05/2015)

In Wanglan's example, when she could write from a Chinese perspective that was unknown to her professors and students, she felt her writing was valuable to her class.

Other Chinese students expressed similar success with writing when there were opportunities to include their knowledge of Chinese contexts or perspectives as Chinese students. Shaoxin (Chemical Engineering) described how he situated various topics in Chinese contexts and received satisfactory scores for his writing.

For instance, I wrote a paper about genetically modified food technology for a writing course, so I would write what is good and bad about it, how people perceive it, what are the problems in people's perceptions, and then I wrote about China, the problem with food safety in China, how would genetically modified technology fit into Chinese people's perceptions, so I would always have enough things to talk about when I relate the topic here to Chinese society. (Interview, 03/10/2016)

When Shaoxin's voice, experience, and knowledge about China were valued in the class, writing became much more meaningful and natural. In Shaoxin's experience, writing is not vapid, but contextualized and meaningful. Situated cognition perspectives value the importance of contextualizing education in the students' home

cultures. Successful teachers have to understand students' cultural practices in order to bridge misunderstandings between values, attitudes, and beliefs and conduct effective teaching (Moll & Greenberg, 1990). Contextualizing the curriculum of Westie University with their own knowledge and experiences from China was empowering and effective for some Chinese students.

In conclusion, in this section many Chinese students described the difficulties they faced in terms of academic writing and class discussions. While some of the U.S. faculty attributed those difficulties to Chinese students' lack of critical thinking, there was a lack of connections between critical thinking and Chinese students' descriptions of their experiences, both painful and successful experiences with academic writing and class discussions. I analyzed Chinese students' experiences through situated cognition theories, specifically, the perspective that learning happens as participation in the class community and that the students' cultural practices need to be valued in education to promote the students' learning. Thus, when the students perceived their class communities as safe and welcoming and that their Chinese knowledge and experiences were valued, expressing their experiences and opinions became valuable, meaningful, and successful. This section suggests that educational practices to nurture Chinese students critical thinking could focus on building a safe and welcoming classroom community that values Chinese students' unique opinions, knowledge, cultural practices and histories.

6.2.3 The Cultural and Interactional Contexts

Many of the conventions of communication between China and the U.S. are discussed in intercultural comparison studies to explain Chinese students' reticence (Cheng, 2000; Heng, 2016). From the perspective of situated cognition, the norms and

conventions of talking are cultural specific and constructed in the discourse community (Swales, 1990). The Chinese students should be helped to develop the awareness of such different cultural norms.

Chinese students discussed with me the different cultural understandings of silence when commenting on their class participation in Westie University. While Chinese classrooms tend to regard student answers as a demonstration of students' knowledge and therefore, a correct answer is desirable, Western classrooms regard students' class participation as a process to help students think and form ideas. As Bing (Finance) reported, "in the U.S., you can talk whenever you want":

Author: Do you think critical thinking affects the way you join class discussions?

Bing: As a Chinese person I think I really get affected by some Chinese cultures because... you have to come up with a very perfect answer, and you are ready to go. *But here I think it's different. You can talk whenever you want, in that moment that you're thinking.* You don't necessarily have to come up with a very perfect answer. You can speak whatever you want to say. (Interview, 04/02/2015)

Bing described the different perceptions of student participation between the Chinese and U.S. academic cultural practices which posed a barrier for Chinese students wishing to join discussions in the U.S. This is a challenge that many studies of Chinese students studying abroad have discussed (Cheng, 2000; Zheng, 2010; Zhou et al, 2005). Bing realized the cultural differences between Chinese and Western cultures and also described his adaptation to U.S. universities. Interestingly, Bing felt that speaking in class did not necessarily make him smarter; he was merely joining the Western convention of speaking up in class.

In the following example, Miao described how not fully understanding the convention of class participation posed a barrier for her to join sociology class discussions.

The professor for sociology is very cool! He makes you think. For instance, race, poverty, or social issues..he doesn't have attendance, he doesn't have iclicker, he wants you to talk to him. You have to answer his questions to get the participation score... I am actually very confused about "participation"...So many students in that sociology class, it is in big classroom. How do I participate? I raised my hands at first, but he didn't pick me, so I didn't... (raise my hand any more). (Interview, 04/15/2015)

The norms about class participation, which may be crystal clear for the sociology professor and other mainstream students in the sociology class, were opaque to Hai. On the one hand, Hai was attracted to the sociology course because of the professor's character and the course content that encouraged and probed her to think about various social issues; on the other hand, the confusion about participation requirements posed a challenge towards her full participation in the course.

In the previous chapter, I discussed that professors in Westie University found that Chinese students received much higher scores in theory classes than in their design projects and thus they thought that some Chinese students might lack certain skills required for creative group projects. From the Chinese students' perspectives, the difficulties with design projects were attributed to understanding the convention of working with American students in groups not to their lack of critical thinking.

Several Chinese students described working with American students in groups as hard for them although some Chinese students found working with American students as rewarding. Song (Mechanical Engineer) reported that he was aware that his grade for the senior design project was unsatisfactory because from the professor's

perspective, “he only did some math,” and was not involved in the actual graphic design process. However, in Song’s perspective, the problem was that Song failed to convince his group members to work on his idea due to communication problems.

Song said:

I actually had a lot of good ideas at the brainstorm stage. A lot of ideas. But then we had a lot of group meetings, so my plans didn’t work out. I think it is just during the group meetings, it is really hard to push my plans. Everyone comes up with some plans, so *you really have to push your own, but I just wasn’t good at that.* (Interview, 03/02/2016)

Song’s experience suggests that critical thinking was not a cognitive skill that, once gained, would help the students solve problems. In fact, a number of other factors – whether the student’s ideas were recognized in the group and whether the student was able to push for his own ideas – are all essential to demonstrate critical thinking in the context of a group project. Song said that “he had a lot of good ideas during the brainstorm stage.” Song did not lack creativity, but he was unfamiliar with American educational conventions in terms of how to convince his group members to work on his ideas. The barrier to fully participate in his group project was his unfamiliarity with Western academic norms instead of critical thinking as a cognitive skill.

Changsu (Chemical Engineering) specified how working with American students in a group was problematic for him due to unfamiliarity with American academic culture:

How do I work with Americans in a group? Do I just walk to them and say, hey, I want to be in your group? What if they already have a group? When I could not figure out how to do the work that was assigned for me, I didn’t know what to do next. Do I have to figure it out before the group meeting? Can I bring it up to them (my group members) that I couldn’t do it? How do I bring it up? What to do when I have another commitment that have time conflict. Do I have to give up everything for the group meeting? *Working with American (students) is so hard.* (Interview, 04/08/2015)

Changsu had a series of questions about each move necessary to cooperate with American students, including how and when to ask a question in the group and how and when to negotiate meeting time with his group members. Such moves might seem obvious for American students. The Chinese students constantly worried about doing something improper as they were unfamiliar with the norms of group work in Western University. The understanding of the conventions of working on a group project prevented Changsu from participating and interacting with the American group members effectively, thereby limiting his opportunities for demonstrating his critical thinking skills.

In conclusion, Chinese students reported a variety of difficulties encountered while studying in a Western university because of cultural differences. From some faculty members' perspectives, Chinese students tend to be reticent in class discussions, or work on the calculation tasks in engineering group projects and lack creative ideas for the design aspect. Some of the professors attributed lack of critical thinking to such challenges. However, from the Chinese students' perspective, these were due to unfamiliarity with American academic conventions.

6.2.4 The Linguistic Contexts

English language proficiency is mentioned by almost all the interviewed faculty and students in terms of the students' quietness in the classrooms and difficulties in speaking and writing. While it is not surprising that some of the Chinese students find it challenging to express themselves because of insufficient English language proficiency, it is important to examine how language proficiency affects students' demonstrations of critical thinking in Western classrooms.

Following, Miao (Accounting) describes how oral language proficiency in disciplinary language was a barrier for her to join the discussions in accounting classes even when she had the right answer to a question in accounting class.

Language was surely a difficult thing for participating in the accounting class, for the first semester *I couldn't even pronounce the big numbers in accounting*. Like a couple of millions or a couple of thousands. *I couldn't even pronounce that big number*. (Interview, 04/15/2015)

Yi (Economics) attributed her difficulty writing to her limited English language which affected her ability to express complicated ideas. She specifically pointed out that in her first language, she was able to describe a thing in different ways, but in English, she could not.

I took a writing class last semester, and it was so frustrating! You have nothing to write but they just want you to write. *You can't really describe things with vivid language like using first language*. In my native language, I will use a few different ways to describe a thing. In English, you have to think about it, translate it. You lost that variety of language and you end up with only one simple sentence to describe the thing. (Interview, 03/02/2016)

In these examples, language acted as a barrier to Chinese students' expressing their critical thinking. In other words, critical thinking was embodied in the students' ability to express their thoughts in the English language.

In the following very vivid quotation, Wanglan (Journalism) expressed her frustration with writing in English. When studying with English as their second language, the students' motivation and ability to cope with language proficiency is very important to conquer the linguistic difficulties.

I write very slowly. Writing in second language, I search for vocabulary, I search for sentence structure. *I write too slowly, sometimes I can't bear that*. Last Friday, my roommate (American student) and I started to write the paper for a course at the same time after the noon. By four o'clock in the afternoon, she finished writing and went out partying, but I had just finished the reading! I

couldn't finish the whole writing until 10 pm when she came back. *I was working the whole time, I couldn't take it anymore, I was so sad and desperate, I drank the leftover alcohol she brought back.* (Interview, 04/05/2015)

Instead of developing critical thinking skills, it seems that Chinese students need to develop endurance for painstaking work in order to achieve excellence in academic writing due to their lack of English language proficiency. If the teaching practices could take into considerations the motivation and endurance needed for the Chinese students to conquer the difficulties, it is possible that Chinese students' academic writing could be improved.

Another difficulty that some of the Chinese students experience is with the language used in group projects. Shaoxin (Chemical Engineering) said:

Understanding them (the American students) during the group talk is the hardest. They (the American students) don't pay much attention to the clarity of their language when it is informal setting. And when you speak, you only have the opportunity to say two sentences before their attention is steered away. *I had to practice summarizing what I have been doing and what is the problem in two sentences before the group meetings.* (Interview, 03/10/2016)

In group work, when multiple people are working on the same project, the conversation moves quickly. For Chinese students who find it hard to express their opinions in English, finding opportunities to speak while working on a group project is even harder than usual. As Shaoxin observed, "You only have the opportunity to say two sentences before their attention is steered away." Besides understanding the conventions of group work at Westie University, Chinese students also had to conquer the language barrier.

However, there are variations in Chinese students' motivations and abilities to conquer the difficulties of group work due to language proficiency. Although Shaoxin found that working with American students was hard and he needed to intentionally

prepare himself for group discussions, his skill working with American students improved throughout the project. According to him, he developed a “revolutionary friendship” with the American students in his study group. Shaoxin was able to find an internship in the U.S., “probably due to his ability to work with the Americans,” as he told me in the interview. Qiu (Chemical Engineering) told me that despite the difficulties of working with American students in a group, he intentionally worked with them in design projects because “they understand the task requirements much better than us” (Interview, 03/10/2016). Although working with American students is hard and takes great effort, some Chinese students found working with American students rewarding.

There were also Chinese students who preferred to work with Chinese students over American students. Wuhao (Computer Science) said he “never cooperates with the American students” because working with the American students was “too troublesome.” Wuhao had an experience where, due to some misunderstanding of the task requirements, his group of four Chinese male students could not get a satisfactory score after great effort, so I asked him if he might consider working with American students as Qiu (Chemical Engineering) did. Wuhao replied “no,” that working with American students “[wasn’t] worth the effort” (Interview, 01/06/2016).

English language proficiency is a barrier for many Chinese students when attempting to express themselves in class discussions, writing, and group work. The importance of language as a tool and mediating factor for the students to learn and to develop their cognitive skills are key in a situated cognition perspective (John-Steiner & Mahn, 1996). The Chinese students and U.S. faculty’s discussions of the students’ English language proficiency are compatible with a situated cognition perspective.

6.3 Conclusion

In this chapter, I discussed the Chinese students and their U.S. faculty's perspectives on some of the challenges that Chinese students faced which could be associated with critical thinking. The results show that some U.S. faculty tend to interpret critical thinking in Western cultural, social, educational, and interactional contexts that require Chinese students to speak their personal opinions, organize their thoughts, develop arguments according to the academic norms of Western academic writing, solve problems with creativity, and cooperate with Western students. Such perspectives of the faculty might also influence the teaching practices of the faculty. When the Chinese students fell short of the faculty's expectations, it was sometimes interpreted as a problem of critical thinking. The professors were also aware that language, culture, and the student's previous educational experiences might have influenced the Chinese students' performances in Western universities.

However, from the Chinese students' perspectives, the problems with class discussions, academic writing, and creative problem solving were not necessarily connected with critical thinking skills. Instead, the Chinese students gave rich reflections on whether and how they saw their own voices, knowledge, and cultural backgrounds as valued in writing and in class discussions; the cultural differences in terms of conventions of interactions; and finally, their language proficiency as barriers to demonstrating critical thinking at Westie University.

A situated cognition framework helped me to analyze the Chinese students' perspectives and bring the importance of interactional, educational, social and cultural contexts to the surface. The students' interviews suggested some educational practices that can support students' critical thinking such as: considering the safety of classroom communities in creating a context where Chinese students can express their opinions,

valuing the students' opinions, promoting an understanding of the conventions of communication with faculty and students at Westie University, and strengthening the students' motivation and determination to conquer language barriers. Chinese students' interview data revealed the necessity to understand critical thinking specifically in the context of how Chinese students experience the social, cultural, educational, and interactional contexts.

Chapter 7

CONCLUSIONS AND DISCUSSIONS

This project examined the explicit and implicit conceptualizations of critical thinking from the perspectives of 12 Chinese students who are studying in a U.S. university and 10 of their U.S. professors as well as how such conceptualization affected the Chinese students' experiences in a Western university.

This project firstly reviewed literature on intercultural education and critical thinking studies. Some literature examining Chinese students' educational experiences abroad suggests that some of the difficulties that Chinese students encounter in Western universities might be due to Chinese students being insufficiently prepared in terms of critical thinking due to their education in China (Durkin, 2008; Kettle & Luke, 2013; Paton, 2005; Yan & Berliner, 2009). Other literature examining the teaching of critical thinking in Western universities singled out students of East Asian backgrounds due to the assumption that Chinese education might be lacking in the development of students' critical thinking (Atkinson, 1997; Davies & Barnett, 2015; Johnston et al, 2013). While there are controversies among the practitioners and literature in terms of how much the challenges that Chinese students experienced could be attributed to critical thinking, little is known about Chinese students' interpretation of critical thinking concepts and its relation to their education from the perspective of the students themselves.

In the course of examining literature on critical thinking concept, I realized that the definitions of critical thinking involve a number of controversies (Atkinson, 1997;

Arum & Roksa, 2011; Fox, 1994) and that the very definitions of critical thinking needed to be examined before I could discuss whether and how critical thinking is connected to the Chinese students' experiences. A situated cognition theory was applied to analyze the data as it helped me consider the Chinese social, cultural, and historical contexts in my discussion and interpretation of Chinese students' voices in their unique contexts.

In this study, after examining definitions of critical thinking among the U.S. faculty, Chinese students, as well as in educational literature, I conceptualized two approaches to define critical thinking: one approach was to define it as a universal thinking skill, for instance, the analytical skill learned in an economic class that can also be applied in students' future job. Another approach was to consider critical thinking in the contexts: for instance, critical thinking as the students' gains in an explorative and authentic project. This does not mean that the two approaches are binary, but there is a spectrum in terms of what the conceptualization of critical thinking is decontextualized from.

There are limitations in defining critical thinking as a universal thinking skill. For instance, for some faculty and students, problem solving in a chemical engineering course may constitute critical thinking, as those students and faculty defined critical thinking as a universal thinking skill. However, considering the classroom contexts, such problem solving might be regarded as getting the correct answers to fulfill a teacher's requirement and does not involve students' creativity or analytical skills for authentic problem solving. In this study, Chinese students were more likely than the faculty to define critical thinking as explorative studies and reflections of various perspectives that they were exposed to while studying abroad. At the same time,

Chinese students were more likely than the faculty to regard critical thinking as only important for specific situations in education. The U.S. faculty members, however, were more likely to regard critical thinking as important for all courses and all situations.

The emphasis of the Chinese students' definitions of critical thinking as contextualized does not mean that Chinese students have a more proper way of defining critical thinking than their professors. Rather, it might be that the professors are influenced more by the literature advocating critical thinking as universal thinking skills in reading and institutional requirements.

It is also possible that the reason Chinese students value critical thinking as challenging their previous assumptions is because they have been exposed to both Chinese and Western cultures in their study abroad experiences, as some literature about intercultural education has also emphasized (Chirkov et al, 2008; Henze & Zhu, Yang et al, 2011). However, this hypothesis is beyond the scope of current study and might be better answered if the Chinese students were compared to the U.S. college students who do not have study abroad experiences.

I disagree with the literature which defines critical thinking as too vague and thus dangerous for educational theories (Vandermensbrugghe, 2004), as I found the professors in this project offered rich descriptions and examples of critical thinking in their disciplines and in teaching Chinese students. The Chinese students provided various and rich definitions of critical thinking from their own social and cultural perspectives. Critical thinking invokes very specific skills, concepts, and issues with some of the professors although those skills, concepts and issues were not shared among all the participants.

I also disagree with the assumption that critical thinking is a Western practice that is inapplicable to Chinese students (Atkinson, 1997). The Chinese students did not regard the critical thinking concept as contradictory to their social and cultural backgrounds as some literature has suggested (Bartlett et al., 2015; Johnston et al, 2013). Most of the Chinese students in this project were able to discuss their conceptualization of critical thinking, although they needed some questions and prompts to promote this discussion. Some of the Chinese students conceptualized critical thinking similarly to their Western professors and some Chinese students valued critical thinking gained in their educational experiences.

This brings the discussion to my last point: how to understand the challenges that Chinese students encounter in U.S. universities. From the faculty's perspectives, critical thinking constitutes the courage to express one's opinions even if it is against the authority's opinion, the understanding and awareness of demonstrating evaluative and analytical skills in academic writing, and cooperation with other students in creative problem solving. Thus, the challenges that Chinese students faced might be partially interpreted as being rooted in a lack of critical thinking as literature suggests (Cheng, 2000; Tang, 2016; Turner, 2004).

However, from the Chinese students' perspectives what influenced their choices in class discussions, academic writing, and creative group projects were: the understanding that the educational environment in the U.S. is safe for them; that their opinions and experiences are valued in U.S. universities; the resilience to work with American students when group cooperation is hard; and the drive to write and speak in the English language despite the difficulties in doing so.

Instead of regarding critical thinking as a pre-determined criteria and evaluating Chinese students' capacity for critical thinking (Yeh & Chen, 2005; Stapleton, 2011; Wong, 2007), this project applied a situated cognition framework to explore what constitutes critical thinking in student experiences. Using this perspective, I did not assume that faculty members know more about critical thinking than the students or that faculty members impart critical thinking to students as other educational studies have suggested (Halper, 1999). The faculty and the students' perspectives on critical thinking, the mismatch between the faculty and the students' conceptualizations, expectations, and experiences of critical thinking are highlighted in this project.

Initially, I assumed that Chinese students studying in the U.S. might find joining class discussions, completing academic writing, and creative problem solving difficult, as these activities require critical thinking, which some literature has hypothesized is not emphasized in educational practices in China (Dai, 2008; Durkin, 2008; Hu, 2002; Tang, 2016; Turner, 2004). By presenting the Chinese students' voices in this project, this project reflected on assumptions about Chinese students and suggests that presenting Chinese students' difficulties solely as a lack of critical thinking is problematic. The participants in this study made it clear that they did not conceptualize critical thinking as having a large impact on their study abroad experiences.

There are two ways to interpret the Chinese students' perspective that the difficulties they faced in the Western universities were not about critical thinking. Firstly, it is possible that as some literature discussed (Turner, 2004), the Chinese students are unaware of the basic requirements of critical thinking underlying the

Western academic conventions of class discussions, academic writing, and problem solving. However, the Chinese students in this project were reflective on their own experiences. Some of them were even able to participate in class discussions and write academic papers that were highly regarded by their Western professors.

This project suggests that there might be a second explanation. It is possible that the Chinese students did not perceive critical thinking as situated in various aspects of learning in Western universities, as their professors did. The Chinese students defined critical thinking as having their own opinions challenged and authentic, explorative learning, as discussed in the last section. Nevertheless, the Chinese students did not always experience class discussions that challenged their opinions or offered opportunities for authentic and explorative learning. Therefore, the Chinese students perceived that there is a lack of connection between their experiences and critical thinking concepts.

7.1 Implications

This study suggests that is important for educators in both China and the U.S. to reflect on the practice of teaching critical thinking as a universal cognitive skill in the universities. As the students suggested, when teaching with a traditional method (doing tasks assigned by the teachers that required arriving at predetermined answers), the skills acquired in the classroom might have limited applications outside classrooms. Therefore, assuming that the problem solving in the classrooms could be applied in students' jobs automatically might not be helpful for the students. As the students suggested, explorative studies that were authentic were valued by the students and might be conducive for preparing the students for their future career.

This study also has implications about educating Chinese students in Western universities. The study discovered a number of gaps between how Chinese students and U.S. faculty discussed classroom participation, academic writing and group discussions. Facilitating further communication and dialogues between the Chinese students and U.S. faculty is important for understanding the needs and expectations of faculty and students. For instance, if Professor Young (Chinese History) could have foreseen that his students had difficulties positioning themselves in discussions of Chinese foreign affairs, he could have helped the students by affirming their personal opinions on the issue, and helping the students develop the argument. If Professor Clark (Mechanical Engineering) could understand the Chinese students' difficulties to join a group with American students in designing projects, she could make her expectations more explicit for both Chinese and American students in the group.

The findings reveal that a few methods are effective in promoting the Chinese students' participation of class discussions and their academic writing: regarding class discussions and academic writing as authentic dialogues, understanding and valuing Chinese students' cultural practices and experiences, improving Chinese students' language proficiency in discipline specific language, encouraging American students to consider Chinese students' needs, and engaging the students in dialogues with different perspectives before writing.

Finally, this study problematizes a stereotype of Chinese students in Western universities. While many of the challenges that Chinese students experienced could be seen as systematic and could be attributed to Chinese cultural practices, the Chinese culture might not determine the Chinese students' experiences. As some interview data showedsa in this project, when provided with safe and welcoming class

environments, many of the Chinese students were able to conquer those challenges. The Chinese cultural backgrounds could also act as assets for the Chinese students to reflect on various perspectives when they are studying abroad.

7.2 Limitations and Future Research

There were limitations in this research which should be addressed. First, the usage of interviews. While there was analysis of students' writing samples, the majority of the data in this project are faculty and student interviews. Thus, this project focuses on exploring the faculty and students' opinions, concepts, and espoused theory of critical thinking. This is a limitation because the experiences discussed in the interview might be restricted by participants' perspectives and observations. For instance, in my analysis, some of the faculty conceptualize critical thinking in their disciplines of teaching. It is assumed in this project that in such courses, the students solve the problems with pre-determined answers. It is possible that some professors conduct their classes with authentic and engaging dialogues with students, but when they describe their lessons, cognitive terms are more easily available to them as they are not professionals in educational theory. Future research to analyze actual classroom discourse, the professors' communications with domestic and international students in and out of the classroom, and the students' behavior in group projects are all important to deepen the understanding of teaching in universities.

Second, the sample size in this project is small and self-selected. Most of the Chinese students in the group had a higher than average GPA and most of the faculty interviewed were selected based on student opinions that they are more devoted to undergraduate teaching than the average professor. Therefore, the faculty and

students' experiences in this project may not be able to be generalized to all Chinese students, all faculty that teach Chinese students, or all Western universities that recruit Chinese students. While there are advantages to such a sample, further research involving larger sample sets for both students and instructors and/or more varied data sources are needed to reveal more ways to conceptualize critical thinking, to understand the challenges that Chinese students face while studying abroad, and to generate strategies to involve Chinese students' voices and opinions in Western universities.

Third, as this project focused on studying Chinese students' experiences as related to critical thinking, there are some problems key to teaching Chinese students that emerged from the interviews which are not studied in this project. For instance, the frequency with which plagiarism by Chinese students was mentioned by the faculty surprised me, but is not studied in this project since it does not relate to critical thinking. Future research should take into account some of these issues which in order to better understand Chinese student experiences in Western universities.

Future research about critical thinking needs to carefully consider the context of critical thinking. This study does not indicate that the critical thinking concept needs to be abolished in education or that a cognitive perspective of thinking is always problematic. However, this study suggests that in discussing teaching and student experiences, the context of critical thinking and other thinking skills needs to be taken into consideration. Specifically, it is important to examine the disciplinary, educational, social, cultural, and interactional contexts of the thinking skills.

7.3 Conclusion

This qualitative study examined the reflections of 12 Chinese students studying in a U.S. university and 10 of their faculty in terms of their conceptualizations of critical thinking. Throughout the study, a situated cognition framework was applied to analyze the interview data and explore faculty and students' discussions of some challenges that Chinese students faced.

The participants of this study were asked to explicitly define critical thinking, to assess their understanding of the importance of critical thinking in students' learning and lives, and to discuss whether and how critical thinking is related to some of the challenges that students faced while studying abroad, such as academic writing, joining classroom discussions, and solving problems in design projects.

After a grounded theory analysis, the results shows that some U.S. faculty and Chinese students problematized critical thinking concept as a universal skill that once learned, can be widely applied. Chinese students' definitions of critical thinking tend to be intertwined with students' examinations of their previous assumptions in their studies and their life. In the U.S. faculty and Chinese students' assessments of the importance of critical thinking, faculty members tended to place more emphasis on critical thinking than the students. Some of the students regarded universal critical thinking as not transferable to their work and future life, and hence not that important. Finally, U.S. faculty and Chinese students reflected that while some U.S. faculty associated the difficulties that Chinese students experienced as related to a lack of critical thinking, Chinese students tended to discuss the safety to express themselves, the perception that their opinions and experiences are valued, and cultural differences of academic conventions and language barriers.

This study is significant for the field of international education for several reasons. To start, it demonstrates ways to conceptualize critical thinking in Chinese students' social, cultural, and educational backgrounds instead of as a deficit located in the cultural backgrounds and practices of Chinese students studying abroad in Western countries. Further, the challenges that Chinese students faced in this study might be faced by other Chinese students studying abroad currently or in the future. The U.S. faculty and Chinese students' reflections on what helped them conquer those difficulties might be helpful for both teachers and researchers of Chinese students. Finally, by interviewing Chinese students with regards to their own reflections, this project incorporated Chinese student voices in the study of critical thinking concepts.

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Appendix A

STUDENT INTERVIEW PROTOCOLS

<ul style="list-style-type: none">• What is your major of study?• How far are you in your study?
<ul style="list-style-type: none">• What does “critical thinking” means to you?• What do you think “critical thinking” means?• Can you give an example of “critical thinking”?
<ul style="list-style-type: none">• What are the most important thing that you have gained in this college? Is it knowledge?
<ul style="list-style-type: none">• Do you feel that any courses explicitly or implicitly nurtured your critical thinking in any way?• Do you feel that any faculty explicitly or implicitly nurtured your critical thinking in any way?• Can you describe your favorite course here? Why do you like it? What did you gain in this course?• Can you describe your favorite faculty here? Why do you like it? What did you gain from him/her?•
<ul style="list-style-type: none">• What do you find difficult in studying in the U.S.?• Can you give some examples?• Do you participate in class discussions? In what occasions do you participate?• Do you work with American students in group project? How is the experience?• Do you find academic writing difficult? Why or why not?• Do you think such difficulties might be about critical thinking?

Appendix B

FACULTY INTERVIEW PROTOCOLS

Interview Protocol
<p>What courses do you teach?</p> <p>How long have you been teaching this course?</p> <p>How many students are there in that classroom?</p> <p>Is the course required for most of the students?</p>
<p>How would you define critical thinking?</p> <p>Can you give an example of what critical thinking would look like in your discipline?</p> <p>Can you think of an example that a student demonstrates critical thinking?</p>
<p>Can you give an example about something you did in your class that you felt really successful/something you are really proud of?</p> <p>Can you describe any scenarios that make you feel successful or your goal has been achieved?</p>
<p>Do you have any Chinese students in your class? How many Chinese students do you have?</p> <p>Have you observed that the way they participate in your class, join classroom discussions, do their assignment, any different than American students?</p>

Appendix C

RECRUITING EMAILS

Hello!

You are receiving this email because our records show that you are a Chinese undergraduate student at the University of Delaware. You are invited to participate in research that will look at the critical thinking concept in college education in both Chinese and U.S. contexts. The focus will be on your experiences as a Chinese international student studying at the University of Delaware and your thoughts about what “critical thinking” means and what roles it plays in your life. I am seeking to better understand the Chinese students’ opinions and experience, and make your voice heard! I hope you will participate!

If you are interested, please reply to this email. I will schedule a 30 minutes interview with you on campus or a coffee shop on main street and I will treat you a coffee! You have to be at least 18 years old to participate in this study.

Your participation in this study is completely voluntary and will not affect your academic standing any way. If you have any questions at all, please do not hesitate to reach out to me.

Best wishes for a happy and productive semester!

Sincerely,

Lei Chen
School of Education

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Appendix D

IRB APPROVAL LETTER



RESEARCH OFFICE

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DATE: February 25, 2016

TO: Lei Chen
FROM: University of Delaware IRB

STUDY TITLE: [710149-2] Perceptions of critical thinking in China and in UD

SUBMISSION TYPE: Continuing Review/Progress Report

ACTION: APPROVED

APPROVAL DATE: February 25, 2016

EXPIRATION DATE: January 28, 2017

REVIEW TYPE: Expedited Review

REVIEW CATEGORY: Expedited review category # (7)

Thank you for your submission of Continuing Review/Progress Report materials for this research study. The University of Delaware IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Expedited Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure.

All SERIOUS and UNEXPECTED adverse events must be reported to this office. Please use the appropriate adverse event forms for this procedure. All sponsor reporting requirements should also be followed.

Please report all NON-COMPLIANCE issues or COMPLAINTS regarding this study to this office.

Please note that all research records must be retained for a minimum of three years.

Based on the risks, this project requires Continuing Review by this office on an annual basis. Please use the appropriate renewal forms for this procedure.

If you have any questions, please contact Nicole Farnese-McFarlane at (302) 831-1119 or nicolefm@udel.edu. Please include your study title and reference number in all correspondence with this office.