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Critical Thinking and Selfhood in the Age of Globalization:

A Case Study of Transnational Chinese Undergraduates in the United States

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Education

by

Hui Xie

2022

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ABSTRACT OF THE DISSERTATION

Critical Thinking and Selfhood in the Age of Globalization:

A Case Study of Transnational Chinese Undergraduates in the United States

by

Hui Xie

Doctor of Philosophy in Education

University of California, Los Angeles, 2022

Professor Edith S. Omwami, Chair

Teaching students to think critically constitutes an essential goal in American higher education because of its presumed role in advancing knowledge, entrepreneurship, and democracy. Despite decades of intensive debates and expanding global influence, critical thinking remains a contested concept. This is not only because educational theorists and practitioners continue to diverge on what critical thinking is and how to teach it, but also because newer questions have emerged on whether critical thinking as traditionally conceptualized and taught has been sufficiently critical of its own embedded cultural, class, and gender assumptions, and whether its hegemonic influence over other education and value systems amount to a form of *conceptual colonization* or *neoliberal conceit*.

Yet within these contestations, students' perspectives on critical thinking as a set of valuable and transferrable skills are largely missing. While there has been a sustained research

interest in assessing students' critical thinking skills and in exploring their learning challenges—particularly for students from East Asia for whom critical thinking may constitute a new way of thinking different from what they had been taught previously in their home countries—in-depth understanding of students' experiences vis-à-vis critical thinking is still lacking in the literature.

This qualitative dissertation fills the knowledge gap by addressing the following research questions: *What are students' perceptions and experiences with critical thinking? What factors might contribute to their varied understanding and application of critical thinking; vice versa, how does the acquisition of critical thinking, as an important educational outcome, play a role in their overall development?* Drawing upon theories from sociology, psychology, and philosophy of education, this research project approaches these questions by examining holistically the experiences of transnational Chinese undergraduates—the largest student group of foreign origin in the United States. Based on extensive interview data and supplementary data sources from 20 participants at a research university in the U.S.—representing a wide range of demographic and educational backgrounds—the dissertation presents potentially significant findings for understanding the nature and function of critical thinking from a cross-cultural perspective.

For example, the study finds that, whereas the literature has often presented critical thinking as fostered in the West as a "paradigmatic" challenge for students from Asian countries or the East, many participants have developed important aspects of what they would later identify as critical thinking prior to higher education in the U.S. In addition, while critical thinking is typically conceptualized and taught as a set of logical and argumentative skills, participants' descriptions of critical thinking often highlighted the attitudinal aspect (e.g., an independent,

questioning, open, and truth-seeking spirit) as its defining features. Many of the participants also presented a more involved or complex practice of critical thinking outside of the academic domain, especially in their personal domain where open-ended, multi-logic questions frequently arise as they lead a more independent life abroad and straddle two sets of cultural norms or social practices that are still substantially different in many ways. Most prominently perhaps, the contrasts between participants with higher vs. lower demonstrations of critical thinking and their different orientations toward the self can shed light on the necessary internal development for a critical thinker that is also largely missing in the critical thinking literature and textbooks.

In short, findings from this study complicate the common understanding of critical thinking as an important educational goal in American higher education, as a readily transferable skills across domains, and as a challenge for students coming from non-Western or non-democratic cultures, such as transnational Chinese students. At the same time, the additional complexities from the findings may also add depth to and open up opportunities for, as educational theorists and researchers have been advocating for years, a reconceptualization of critical thinking. The dissertation addresses the call for rethinking and revitalizing critical thinking as an innately democratizing force that may be innate and universal in spirit, yet specific and diverse in forms—i.e., in its varied manifestations across disciplines, domains, and sociocultural contexts.

Keywords: critical thinking, selfhood, transnational Chinese, cross-cultural perspective, American higher education, globalization, democratizing/reconceptualizing critical thinking

This dissertation of Hui Xie is approved.

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University of California, Los Angeles

2022

DEDICATION

To Ian and PH

&

In memory of my mother

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Chapter 1. Introduction

1. Research Background & Problem

(1) Changes & Controversies within the Critical Thinking Debate

Teaching students how to think critically carries a special import in the mission and quality of higher education in the United States. "Critical thinking" has been widely recognized as an essential goal of undergraduate education (Arum & Rokas, 2011; DeAngelo et al., 2009; Halpern, 2001) because of its perceived role in ensuring academic rigor, stimulating economic innovations, and safeguarding democracy (Kurfiss, 1988; Koenig et al, 2001; Lau, 2011). Despite the sustained interest in critical thinking as a significant educational outcome, opinions diverge among educational theorists and practitioners on *what critical thinking is* and *how to teach it*—rendering it one of the most difficult and contested concepts in education (Davis & Barnett, 2015; Fisher, 1999; Hitchcock, 2018; Noddings, 2012).

The practice of critical thinking and the idea of promoting it to the general public has had a long philosophical lineage in the West, notably espoused by key figures like Socrates, Kant, and Dewey. Its current popularity as an educational buzz word, however, came most directly from a concerted effort by educational theorists and practitioners, primarily based in the U.S., in what may be called an on-going "critical thinking movement" (Davis & Barnett, 2015; Ennis, 2011a; Noddings, 2012; Paul, 2011). The movement is thought to have gone through at least two distinctive but overlapping waves, each of which was spurred by a competing set of philosophical traditions and educational concerns.

The first wave of significant interest in critical thinking emerged around the '70s in the U.S., following a long incubation period. Critical thinking as an educational goal was first implemented experimentally during the progressive-education movement in the 1930s, which drew much of its inspiration from Dewey's philosophy of education (Ennis, 2011a; Hitchcock, 2018). However, the progressive-education movement disintegrated in the 1950s and, along with it, the interest in critical thinking also waned. According to Robert Ennis (2011a), it was philosophers (though psychologists also did substantial research over the decades, as I will discuss later) who continued an active interest in teaching the subject matter during the ensuing decades. As these philosophers primarily had a background in analytic philosophy and logic, the first wave was dominated by an interest in critical thinking as logical reasoning and argument analysis. Based on this view, the teaching of critical thinking would typically consist of a general course on formal and informal logic.[1] It is thought that by developing logical reasoning and skills for identifying and evaluating arguments, students would be able to develop faster mastery of academic subjects and an enhanced ability to understand and resolve issues in everyday life.

Ennis's 1962 conception of critical thinking as "the correct assessing of statements" is arguably the progenitor and a paradigmatic example of the first wave. Even though Ennis would significantly expand upon this initial conception over the years—parallel to the evolving debates within the critical thinking movement—it was this logic and argument-centered conception that galvanized much of the later interest in critical thinking as an important educational goal.

---

[1] The distinction between formal and informal logic is informatively summarized by Kurfiss (1988) in the following: "Logicians are concerned with the structure of arguments and the ways arguments can go astray. Traditionally, logicians studied deductive and inductive inference using arguments presented in idealized syllogistic forms. In recent years, some logicians have turned to the study of argument as it is practiced in everyday life, or 'informal logic'….Textbooks on critical thinking and courses based on informal logic focus on the structural features of arguments, criteria for evaluation of arguments, and the fallacies or sources of error…" (p. 14).

Moreover, as this conception was seamlessly incorporated into a number of popular assessment tools (e.g., the Cornell Critical Thinking Test published in 1971, which Ennis co-authored), the logic-centered conception and approach to critical thinking became "an important point of reference for subsequent debates concerning critical thinking and education" (Biesta & Stams, 2001, p 59).

The critical thinking movement reached its height in the U.S. during the second wave, in the '80s and '90s. On the one hand, the informal logic or general thinking skill approach to critical thinking continued to dominate the field, expanding its influence on educational curriculum and policy. For example, numerous institutions, such as the Rockefeller Foundation, the Carnegie Foundation, and the College Board, began to identify critical thinking as an essential academic competence in the early 80s. The 1980 California Executive Order 338 mandated all students at its State Universities to take a course on critical thinking as a graduation requirement. On the other hand, educational theorists both within the informal logic circle and outside of it—e.g., from the different philosophical traditions of postmodernism, feminist, and neo-pragmatism—also joined the debate and made it a much more contested terrain. They not only challenged the prevailing conception and pedagogy of critical thinking but also pushed for a more inclusive conception of what it means to think critically or become a critical thinker.

For instance, Johnn McPeck (1981) questioned the generalizability of critical thinking across disciplines and the usefulness of learning the structural features of arguments, noting that critical thinking is more than just demonstrating a rational train of reasoning. He pointed out that critical thinking entails justifying one's claims with significant evidence, and the criteria of such evidence vary substantially among different academic disciplines. Asserting that the

disciplines represent the highest manifestations of critical thinking for all the problem-domains humans encounter in everyday life, McPeck proposed that critical thinking is most effectively fostered not through a general course on informal logic but through rigorous disciplinary training. Such training would entail teaching students not only the basic content knowledge but also disciplinary methodology and operational knowledge (i.e., how to apply knowledge to solve everyday problems).

By contrast, Richard Paul (1982), who espoused the informal logic approach but also drew inspiration from the Socratic motto of "know thyself," argued that neither the general-reasoning nor the discipline-based approach challenged students to think critically enough—i.e., to reflect deeply on their own thinking and assumptions. He observed that, on the one hand, both approaches did not pay enough attention to complex problems and decision-making in everyday life; on the other hand, many students came to college with pre-established beliefs and deeply-held assumptions that shape the way they interpret the texts and the world around them. Therefore, Paul advocated teaching critical thinking in a "strong" sense: "to help the student to develop reasoning skills precisely in those areas where he is most likely to have egocentric and sociocentric biases" (p. 5).

Yet from the perspectives of postmodern and feminist scholars, while Paul's emphasis on self-examination was an invaluable contribution to a more comprehensive conceptualization of and practice of critical thinking, his insistence on the argumentative form and criteria was still limiting. Nel Noddings (2012) summarized the following critiques of Paul, which apply to the informal logic approach in general:

> Paul contrasts the products of critical thinking to faulty thinking in a list of dichotomies: clear versus unclear, precise versus imprecise, specific versus vague, accurate versus

> inaccurate, fair versus biased. As critics have pointed out, however, not one of these is necessarily an attribute of critical thinking. A product may be accurate, for example, and still be the product of rote learning. On the other side, a powerful example of critical thinking (so judged by experts) may contain inaccuracies . Further, not all critical thinking is characterized by precision, specificity, or even plausibility. And judgments such as relevance and significance might depend more on the field of application than on the reasoning itself. (p. 94)

Like many other theorists from the informal logician tradition, Paul held these logic-centered criteria to be universal and the focus on argumentation to be the fundamental, if not the sole, expression of critical thinking. Feminist and postmodern theorists contended, however, that not only were these stringent logical criteria not specific to critical thinking but that they might in fact amount to an "Eurocentric, androcentric, anglophilic, elitist" practice that suppresses or rejects valuable alternative expressions, such as musical and artistic expressions of resistance or critique of the dominant culture (Weinstein, 1999, p. 110-117). Therefore, these theorists, who were mostly outside of the informal logic camp, proposed critical thinking take a more varied and flexible form. Indeed, for them, critical thinking is arguably bigger than structured persuasion and rigorous argumentation.

Feminist scholars in particular have critiqued the often detached or combative form in which critical thinking has been taught to practice. They noted a typical severance of the self—one's feelings and beliefs—and a lack of care for the other in the argumentation process that has a tendency to turn everything into a "technical" problem, devoid of personal and moral relevance (Belenky et al., 1997; Martin, 1992). In response, many feminist theorists have delved into the purpose question of critical thinking with a larger concern for social justice and wellbeing, as

evident in Noddings' (2012)[2] assertion that "the purpose of strong critical thinking is not only or always to produce the best argument but to connect with others in a way that would make the world demonstrably better" (p. 101). To practice critical thinking as such would mean not a total abandonment of criteria per se or the effort to persuade the other on what one believes to be right; rather, it would mean that "there are strategies [i.e., aggressive and cruel tactics] that I will simply never use in my encounters with others, and there are conversations I will enter that bear little resemblance to the arguments currently described as critical thinking" (p. 105). In other words, critical thinking that is morally directed entails a more nuanced and open response that examines varied types of criteria, encourages dialogues, and strengthens connections between people of diverse viewpoints.

(2) The Less Considered Psychological Perspective

Even though the literature on critical thinking is dominated by philosophical debates on the nature and epistemic standard of critical thinking, philosophers have not been the only ones making valuable contributions to our understanding of the topic. Psychologists have long drawn inspirations from Dewey's work on education and expressed sustained interest in the study of critical thinking as part of an overall disciplinary interest in human and cognitive development (a detailed discussion of this topic can be found in the literature review chapter). Some psychologists promoted critical thinking via designing psychometric tests and hierarchical models

[2] Nodding's "alternative approach" or moral-centered approach to critical thinking was probably explicated in the first edition of her book *Philosophy of Education* (1995)—of which I only have the 3rd edition published in 2012. In her 2012 explanation, Noddings cited similar views expressed by other feminist philosophers like Martin (1992) and some informal logicians with postmodern interests like Weinstein (1993); therefore, it seems likely that her particular view of critical thinking had also emerged around the '90s.

of cognitive abilities for schools, such as Bloom's taxonomy of intellectual abilities and skills published in 1956 and Glaser's *Watson-Glaser Critical Thinking Appraisal* launched in 1964. Others studied students' intellectual or epistemic development and its implications for the teaching of critical thinking (King & Kitchener, 1994; Kurfiss, 1988, Perry, 1970).

Yet in spite of the extensive work on or related to critical thinking from psychological research, a limited amount of knowledge from the psychological side seems to have made its way into the philosophical side, which has dominated not only the central debate but also educational policy and curriculum on how critical thinking should be taught. For example, psychological research has indicated that the transferability of critical thinking across disciplines and domains is a complex matter, requiring explicit instruction in most cases with results that also vary among individual students (Ennis, 2011a; National Research Council, 2012). However, the assumption that such transferability would occur naturally or automatically for all seems to be still fairly common among critical thinking educators, as evidenced by the skill-oriented approach to critical thinking course design and textbooks (e.g., Alec Fisher's *Critical Thinking* published in 1999 and Stella Cottrell's *Critical Thinking Skills* published in 2011). Such a lack of knowledge update may be unsurprising, given how the literature on the critical thinking movement typically focuses the debates among educational philosophers, with minimum, if any, mention of the relevant research done by psychologists (Davies & Barnett, 2015; Ennis, 2011a; Noddings, 2012).

Granted, the lack of disciplinary cross-over or interdisciplinary collaboration may be connected to variations in academic perspectives and methodologies. While philosophers are typically interested in conceptual matters (e.g., what is critical thinking?), psychologists focus on empirical research (e.g., how does critical thinking contribute to students' cognitive maturation

and overall development?). In addition, any challenges with respect to collaboration may be compounded by the fact that psychologists, who have promoted or studied critical thinking in a more inclusive way (i.e., beyond informal logic), have also preferred to call it by different names (e.g., "reflective judgment" by King & Kitchener, 1994) to better reflect their wider research scope and varied interpretations of the kind of thinking that is paramount for students to develop in an increasingly complex world.

Yet, knowledge from psychological research on how students develop intellectually can play an important role in the conceptualization and pedagogy of critical thinking education. For example, cognitive and developmental psychologists have identified students' varied epistemological levels (e.g., dualistic vs. relativistic view of knowledge) to be an essential factor in how they interpret the world and approach complex problems (King & Kitchener, 1994; Kurffis, 1988; Perry, 1970). In addition, psychologists have also found that the informal logic approach to critical thinking may be necessary but not sufficient in helping students to advance to the higher levels of epistemological development (Brabeck, 1983; King & Kitchener, 1994). Such findings from psychology may add to the momentum for a more inclusive conception of critical thinking proposed by postmodern and feminist theorists in the movement.

Moreover, as the psychological perspective typically demonstrates greater interest in the development of the person as a whole rather than the nature and improvement of reasoning alone, it also shows more sensitivity for the complex or multi-dimensional challenges students may encounter when learning to think critically. For example, educational psychologist Kurfiss (1988) explained the following, which was uncommon in critical thinking literature published at the time:

> Critical thinking takes pluralism as given and sees individuals as responsible for constructing their own coherent account of whatever subject they are disposed to investigate. This relativistic or constructivist theory about what it means to know something is not necessarily held by people in students' home communities. (p. 51)

Kufiss also pointed out that the critical thinking learning process can a difficult and "painful path" for such students, not only because the accompanying exposure to different perspectives and uncertainty may be new to them but also because the process may challenge their deeply-held "assumptions about knowledge, truth, authority, and inquiry" (p. 51). In other words, the practice of critical thinking may pose direct challenges to the essential beliefs or assumptions by which students construct their sense of self and identity; as such, they may be likely to find it overwhelming and in may incite resistance. Such psychological insights can help educators create a challenging yet supportive environment that can better foster critical thinking and cognitive maturity among students of varied socio-cultural and epistemic backgrounds (Baxter Magolda, 2004; King & Kitchener, 1994; Kurfiss, 1988). Furthermore, this emphasis on pedagogical sensitivity to students' learning needs in the learning process may be particularly relevant in the current context of globalization, in which the interest in critical thinking has become global.

(3) Critical Thinking in the Age of Globalization

When we shift our focus from the local to the global, what may be demonstrated from an even wider scope of literature is that in our current era of heightened globalization, critical thinking as an important educational goal has become ever more popular yet also problematic. Arguably, both the popularity and problems stem from the two different ways by which critical thinking have become global. One way, to be analyzed in this section, is through its relevance for the rising "knowledge economy" under neoliberal globalization, which has contributed

significantly to the interest in critical thinking around the world in the recent decades. The other way, to be explored in the next section, is through the mass migration of students coming to the U.S. and other developed countries in the west, where the quality of higher education is more reputable and the emphasis on critical thinking is more apparent.

While scholars have an on-going debate about the meaning of globalization and the various aspects of its emergence—e.g., its starting point, underlying causes, and the best theoretical lens to analyze all of it—the common consensus is that globalization, especially in the past 40 or 50 years, has been a multidimensional process of drastic change at the global level (Robinson, 2007; Sheuerman, 2014). That is, the world that used to operate at a more local or national level, separated by geographic boundaries and the time and space needed to traverse across them, are now operating in an increasingly interconnected or internationalized way, prompting social, economic, political, and cultural transformations around the world.

Perhaps the two most salient forces shaping the "particularly intense form" (Scheuerman 2014, p.10) of globalization that we have witnessed over the past few decades have been the rapid advancement of technology and the restructuring of capitalism under neoliberal ideology. Of the technological influence, Sheuerman (2014) offers the following summary: "the proliferation of high-speed transportation, communication, and information technologies constitutes the most immediate source for the blurring of geographical and territorial boundaries" by enabling "relatively fast flows and movements of people, information, capital, and goods" (p. 9). On the economic side, while globalization has grown hand-in-hand with the spread of capitalism and modernization, the increasingly globalized world economy and powerful transnational corporations have coincided in the recent decades with the rise of neoliberalism.

According to Harvey (2005), "neoliberalism" originates from a theory of political economy in the 1930s that believes "human well-being can best be advanced by liberating entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets, and free trade" (p. 2). The theory, which had been in relative obscurity until the 1970s, has since become not only "the central guiding principle of economic thought and management" but also part of "the common-sense way many of us interpret, live in, and understand the world" (p. 2-3). In other words, a theory that emphasizes the maximization of capitalist drive for profit and privatization, while minimizing government intervention and social provision, has become today's prevailing ideology that regulates the thinking and actions of most governments and social institutions, including the universities (Biesta, 2010; Harvey, 2015).

The unprecedented interest in critical thinking since the 70s is perhaps no coincidence, as it took place around the same time as the rise of globalization and neoliberalism. Granted, the end of "the anti- and pro-war forces" for the Vietnam War, during which careful and rigorous thinking was ignored in favor of action, as Ennis (2011a) explained, might have created a more congenial socio-cultural environment for the revival of critical thinking education (since the dissipation of the progressive-education movement that had initially promoted it). However, for the critical thinking movement to have flourished as it did in the '80s and '90s at the local level and continued to spread conspicuously at the global level since the late '90s, economic determinants likely played a significant role. As Harding (2015) explains in the following quotation, neoliberalism has penetrated every social and political fabric of the global world, including the kind of knowledge and capabilities that is to be prized and thus taught in school:

> It [neoliberalism] holds that the social good will be maximized by maximizing the reach and frequency of market transaction, and it seeks to bring all human action into the

> domain of the market. This requires technologies of information creation and capacities to accumulate, store, transfer, analyse, and use massive databases to guide decisions in the global marketplace. (p. 3)

Hence, we see the emergence of an information or knowledge-intensive economy, necessitated by the global neoliberal system and enabled by rapid development in information technology. In this new form of economic production, manual labor and skills that had been the backbone of the manufacturing economy can now be largely replaced by automation and AI. What cannot be supplanted, and thus is in high demand, is highly skilled knowledge workers, who can build robots, analyze data, solve complex problems, and apply knowledge to maximize innovations—all of which requires varying amounts of critical and creative thinking.

As a "knowledge economy" came to represent the new form of production in advanced societies in the West (Dale, 2005; Guile, 2006), other countries soon followed suit to stay economically and politically competitive in the global market. Adopting critical thinking into the school curriculum has become a necessary strategy for keeping abreast with the fast-changing work force and steep global competition. For example, the Singaporean government first incorporated critical thinking into its educational curriculum in the late '90s, framing it as an essential skill for its citizens to acquire with the goal of strengthening Singapore's economic and national success in the global age (Lim, 2016). In sub-Saharan Africa, a renewed interest in investing resources into higher education around the 2010s is grounded on the logic that university education can foster critical thinking and critical thinking, which is "crucial for participation in the global 'knowledge economy'" (Schendel, 2016, p. 550).

The motivation across various countries for championing critical thinking as an educational goal may be multifaceted, and some have also stemmed from a genuine desire

among governments, such as those “newer countries of Africa and South America,” to strengthen democratic engagement and the “formation of critical citizens” (Davies & Barnett, 2015, p.1). For others, the “strong overtones of ‘progressivism’” associated with critical thinking helped to enhance the image of an illiberal democracy that claims to promote this more open-minded and liberal way of thinking, as in the case of Singapore (Lim, 2016, p. 102). Yet, looking at countries of varied political affiliations, the common motivation for advancing critical thinking within education policy may have been eminently practical: the impetus to survive and thrive in a fast changing and uncertain world driven by an economy of rapid knowledge and technological innovations as well as fierce profit-driven competition.

Given the prevailing economic and global context just described, it seems highly likely that under neoliberalism, with its singular focus on productivity and efficiency, the kind of critical thinking being promoted globally may be limited in scope and purpose. Hitchcock’s (20018) summary definition of critical thinking may be helpful to quote here:

> …the competing definitions [of critical thinking] can be understood as differing conceptions of the same basic concept: careful thinking directed to a goal. Conceptions differ with respect to the scope of such thinking, the type of goal, the criteria and norms for thinking carefully, and the thinking components on which they focus. (p. 1)

While the educational goal of critical thinking has traditionally been associated with the creation of better knowledge and the preparation of a democratic citizenry who can think and judge independently for themselves, the profit-driven business goal is likely to take a different form. Moreover, if achieving the educational goal of greater understanding and civic engagement entails, ideally, encouraging students to examine arguments across domains and challenge existing claims or authority when necessary, the kind of critical thinking that best serves market competition in a business setting will also look different.

Furthermore, political and social institutions under neoliberalism have become more "authoritarian, forceful, and anti-democratic" (Harvey, 2015, p. 38)—a claim that has been echoed by other scholars (Biesta, 2010; Lim, 2016; Scheuerman, 2014). If this is true, the growing popularity of critical thinking in the global age, boosted by support from the business sector (Davies & Barnett, 2015), calls into question whether there has been a simultaneous reduction of critical thinking. Lim's (2015) book on Singapore's adoption and "recontextualization" of critical thinking is a case in point, because it demonstrates how the emancipatory aspects of critical thinking were carefully controlled by the government and schools to harness its more technical and instrumental in place. The goal was to transform Singapore's economy while leaving its existing sociopolitical establishment largely unchallenged.

In short, in the age of neoliberal globalization, critical thinking is both *promoted*—i.e., as a set of decontextualized technical skills useful for its market-oriented knowledge production—and *reduced*—i.e., severed from its original philosophical and moral commitment to intellectual and personal freedom, democratic engagement, and epistemic and social justice.

(4) Critical Thinking Going Global & Transnational Chinese Students

Yet the precarious state of critical thinking being possibly subsumed by the neoliberal agenda and its implications for the maintenance of democracy and individual autonomy at the global level seems to be a relatively new and thus less discussed problem in the literature on critical thinking. An issue that has been regularly highlighted in the scholarship on critical thinking in the international or cross-cultural context, in fact, echoes the challenge raised by postmodern

and feminist theorists in the domestic sphere: the issue of bias—e.g., gender, cultural, and epistemic—embedded in the dominant conception and teaching of critical thinking.

Educators and researchers of comparative and international education, in particular, have raised pedagogical as well as ethical concerns about the promotion of critical thinking as something value-neutral or universal. This is because critical thinking, as traditionally fostered in the U.S. and other English-speaking countries (e.g., England, Australia, and Canada), takes pluralism and democracy as a given (Dewey, 2012 [1916]; Kurfiss, 1988; Lim, 2016;). And latent in the seeming value-neutral practice of critical thinking—e.g., evaluating arguments for logical consistency and evidential strength, uncovering assumptions for fallacious reasoning or bias, and developing one's own point of view in light of available evidence and perspectives—is the belief in individual autonomy and participation, especially supported and valued in liberal democracy. Moreover, as the expression of one's critical thinking is typically encouraged or required to be necessarily explicit and argumentative—i.e., one needs to not only articulate one's point of view but also persuade others of its value—it can be perceived as confrontational and challenging for students coming from "high-context" cultures, such as Chinese culture, where effective means of persuasion or expression are often less direct, verbal, and individualistic (Jin & Cortazzi, 2006; Song, 2016; Tian & Low, 2011).

In light of these cultural differences, numerous scholars have argued that the teaching critical thinking without consideration or sensitivity to students' experiences, particularly those coming from substantially different cultural and sociopolitical backgrounds, amounts to an expression of "conceptual colonization" and "neocolonial conceit" (Gram et al. 2015; Kuliethe & Egege, 2004; O'Sullivan & Guo, 2011; Tian & Low, 2011). In a more recent study, Song (2018)

highlighted the additional influence of neoliberalism on higher education in Australia, reinforcing critical thinking taught in the West as "an unquestioned form of rationality" and "a yardstick of knowledge" that effectively relegates international students to the inferior 'Other'" (p. 7). This is because under neoliberalism, public funding for universities has been severely cut, leaving institutions increasingly dependent on the financial resources brought in by international student populations, many of whom are from China and other Asian countries. In response to the growing foreign student population and pressured by the business sector's demand for all graduates to possess more market-ready skills, the Australian government mandated that universities teach critical thinking. Students have to pass a critical thinking test or a required generic critical thinking course in order to graduate—a policy that disadvantaged many international students who were able to pass all other course requirements except this one, due to cultural/epistemic differences and the lack of familiarity with critical thinking. Here, the two potential problems with the propagation of critical thinking in the global age seem to dovetail: the reduction of its emancipatory or transformative power in favor of prevailing economic interests as well as the utilization of its technical and market power to diminish other forms of rationality or criticality, further perpetuating the perceived inferiority of foreign students and non-Western cultures.

Yet, like the domestic theorists who called for a "reconceptualization" of critical thinking in the recent decades (Biesta & Stam, 2001), the critiques raised by the comparative and international educators do not in fact call for abandoning critical thinking altogether. Rather, the idea is to revamp critical thinking by making the concept's implicit value assumptions more explicit and open to intercultural dialogue. The goal is to democratize what it means to think

critically and to express one's criticality in different cultural and sociopolitical contexts. In other words, there seems to be a growing consensus among domestic and international scholars on the conceptualization and practice of critical thinking for the global age: it needs to be more inclusive, democratic, and critical of its own status quo (Noddings, 2012; Lim, 2016; Song, 2018; Tian & Low, 2011).

In light of this more reflective or critical perspective questioning how critical thinking has been conceptualized and taught, research on international students, such as those from China, have also demonstrated greater sensitivity to their unique learning experiences and expressions vis-à-vis critical thinking. For example, the research question has shifted from asking: "*Why do these students lack critical thinking?"* to *"Why do they lack (a demonstration of) critical thinking?"* (Tian & Low, 2011), based on a more nuanced understanding of the student population. That is, Chinese students may not express their criticality directly or publicly for various reasons—e.g., language barriers abroad and cultural upbringing at home—even though they may actually have developed a substantial understanding and practice of critical thinking in their own thinking processes. In addition, research frameworks have evolved from "stereotyping" international Chinese students as passive and ill-adjusted learners to highlighting their resourcefulness in navigating the new educational environment abroad and agency in choosing what to adjust according to their needs and interests (Heng, 2016; Wu, 2015).

The case of Chinese students in the U.S. is the focus of this research project, in part due to the author's positionality as a member of this student group and long-term interest in the origin and evolution of critical thinking as an increasingly emphasized educational goal in the

global age. A closer examination of Chinese students abroad is also grounded on the fact they constitute the largest international student population in the U.S. and around the world, accounting for 1/3 of the total international student population in American higher education since the early 2010s. In the 2020-2021 academic year, for example, 317,299 Chinese students studied in the U.S. for tertiary education (including non-degree programs and OPT), with most of these students pursuing an undergraduate (39.6% of the population) or graduate (37.5%) degree(IIE 2021 Report). According to the same IIE report (2021), the total number of Chinese students in the U.S. for postsecondary education around the time when the dissertation data were collected in 2017-2018 was even higher, with a total of 363,341.

While success stories of these students' overseas educational pursuits abound, studies have also demonstrated that they may face significant challenges while studying abroad. In her longitudinal study that closely tracked 92 Chinese students' experiences abroad for over a decade (from 1999 to 2010), Fong (2012) found that in spite of their determination and ambition, many of them experienced "unexpected suffering, ambivalence, and disappointment" (p.268). As perhaps the first generation of Chinese youth "born and raised to rise to the top of the global neoliberal system" (p. 142), the lack of knowledge and preparation for the outside world and the unexpected academic, personal, and financial challenges and changes had left some of them "floating between the margins of China and the developed world" (p.205).

Focusing on the academic challenges alone, one of the salient difficulties Chinese students encounter abroad has been with critical thinking and correlating pedagogical practices, such as active classroom discussion, intensive writing requirements, and problem-based learning (Cheng, 2012; Gram et al., 2013; Shaleen, 2016). Some scholars have attributed the primary

cause for Chinese students' challenging experience with critical thinking to the educational and learning-style differences between China and the West, maintaining that critical thinking is universal or present in Chinese culture as well (Patton, 2011; Tian & Low, 2011). Others have highlighted the cultural differences between the countries, arguing that critical thinking is culturally specific and learning to think critically and participate actively in classroom settings for Chinese students entails a "cultural shift" and a different way of interacting with the world (Cheng, 2012; Kutieleh & Egege, 2004; O'Sullivan & Guo, 2010).

What can be added to this debate about teaching critical thinking globally is the psychological perspective (as discussed in an earlier section) that to practice critical thinking is not simply a cognitive exercise. Learning to think critically may entail examining and realigning one's fundamental assumptions about knowledge, authority, and the self—all of which neither Chinese society nor its largely state-controlled educational system has traditionally or actively espoused (Cheng, 2012; O'Sullivan & Guo, 2010). For these international or transnational Chinese students to practice critical thinking seriously, it might mean taking upon themselves the tremendous task of resolving in some ways the divergent views of knowing and being between the East and the West. Leaving aside the cultural dissonance and identity crisis one may experience at the personal level, the potential threat of marginalization and friction with one's family and society as a result of establishing different knowledge and beliefs through critical examination can be a daunting reality for any individual to experience.

Therefore, international or transnational[3] Chinese students' experiences with critical thinking may present a rich opportunity for examining the nature of critical thinking and its role in the students' overall development as agents of an increasingly intercultural world. Such an opportunity may also help to shed light on the existing teaching and practice of critical thinking fostered in the U.S., the larger environment and other factors that can nurture or inhibit critical thinking development, and the students' cross-cultural experiences on how the acquisition of critical thinking may be benefiting them or not. And the answers to these questions may help to address the pedagogical and ethical issues embedded in the promotion of critical thinking globally and the direction critical thinking may take as a force or tool—as the many educational theorists and scholars cited in this dissertation have all expressed in their varied ways— for generating greater democratic association,[4] epistemic and cultural justice, as well as personal and social wellbeing much needed in an increasingly more complex and dynamic global age.

2. Purpose of the Research Project

In a comprehensive overview of literature on international Chinese students' experiences with critical thinking, Tian & Low (2011) noted a lack of studies using holistic frameworks that take into account how various factors, such as gender, familial background, motivation, prior education, and current learning environment, shape their critical thinking development. The

[3] In this dissertation study, "transnational Chinese students" refers to Chinese citizens who are studying in the U.S., which include both international Chinese (who typically come to the U.S. for higher education, though some known as "parachutes" begin their education abroad in high school or earlier) and immigrant Chinese students (those with permanent residency or "green card" in the U.S. and have immediate family typically reside in the U.S. as well).

[4] Drawing upon Dewey's (2012 [1916]) conception of "democracy" or democratic association, it refers to democracy not only in the political sense (e.g., citizenship with active voting rights) but also, more importantly, in the social sense (e.g., open communication among people of different background and viewpoints that would lead to an enlarged understanding of one another and formation of common ground and genuine community).

authors also recommended more detailed qualitative/empirical studies for better understanding of these students' learning contexts and perspectives. Manalo et al. (2015) made a similar claim about an overall lack of "any study that has in any systematic way examined what students [of various cultural backgrounds] think about critical and other thinking skills they are expected to develop during their years in tertiary studies" (p. 300).

In my review of the literature on critical thinking and on international Chinese students' experiences with critical thinking (details in next literature review chapter), I also found that the two bodies of overlapping literature do not sufficiently communicate with one another. That is, on the one hand, much of the debate on critical thinking have traditionally focused on the conceptual issues (e.g., the nature and criteria of critical thinking) and have not typically delved into the sociopolitical, cultural, and psychological dimensions of critical thinking and its impact on students. On the other hand, studies on Chinese students' critical thinking have lacked not only in-depth exploration of these students' learning experiences and development, as Tian & Low (2011) pointed out, but also substantial engagement with the major issues that had been raised in the critical thinking debate or movement (e.g., the idea of critical thinking as general thinking skills that can be transferred across disciplines, domains, and perhaps cultures). Yet, more studies that cross-reference both the empirical and the conceptual may be needed for intercultural dialogues to take place, as suggested by many scholars, that can further improve and democratize the existing practice and teaching of critical thinking for an increasingly diverse student population.

Given the existing knowledge gaps listed above, as well as the fast changing nature of the Chinese society over the recent decades and the tensions within the critical thinking debate and

its emergence as a global phenomenon discussed in the first section, the purpose of this dissertation project is two-fold. First, to provide an updated understanding of the more recent generation of Chinese students/undergraduates in the U.S., with a focus on their exposure and practice of critical thinking and how it plays a role in their academic and personal development. Second, to address the knowledge gaps revealed in the literature in a way that would contribute to an intercultural dialogue on how critical thinking can be (re)conceptualized to better support students' growth and wellbeing. As a result, the dissertation includes the following research and analytical components: an extensive literature review on critical thinking (chapter 2), an explanation of its interdisciplinary framework (chapter 3), an in-depth qualitative analysis (chapters 5-7) that explores students' learning contexts and the various factors that may contribute to their varied critical thinking development, and a final chapter (chapter 8) that aims to bring together the conceptual and empirical, and the local and global, for a possible reconceptualization of critical thinking that may be urgently necessary.

3. Research Questions

In light of the research goal that aims to provide an in-depth and holistic study on transnational Chinese students' critical thinking development and the lack of cross-cultural perspective in the conceptualization of critical thinking in the literature, this dissertation addresses the following three research questions:

1. What are transnational Chinese students' experiences (i.e. learning and applying) and perceptions of critical thinking (e.g. definition, significance, and its universality or culturally specificity)?

2. Why do these students experience and perceive critical thinking in the way(s) they do, and how did critical thinking impact, if at all, these students' learning and overall development? To phrase this two-fold question differently: What factors (e.g., sociopolitical, educational, familial, and/or personal) contributed to the way these students perceived and applied critical thinking; vice versa, what role did critical thinking play in their academic and personal development as transnational/cross-cultural learners?

3. How would a reconceptualization of critical thinking in and for a global age look like, when we incorporate these student's perspectives and experiences?

This third research is not empirical but conceptual or theoretical. While it may be too ambitious for the purview of a dissertation, it is an important question or direction that has shaped much of the concerns in this dissertation, from the extensive literature review to the detailed discussion on possible reconceptualization in Chapter 5.

4. Theoretical Framework

As the research questions in this dissertation are empirical (the first two questions) and conceptual (the last question) in nature, they call for a complex interdisciplinary theoretical framework that can facilitate an exploration of the various macro-level and micro-level forces that may be shaping students' experiences with critical thinking *and* an interpretation of critical thinking in the global age in light of these students' perspectives. The hybrid framework draws upon theories from three different disciplines—sociology, psychology, and philosophy—as briefly explained in the following:

First, the sociological theory of “reflexive modernity” or “late modernity” (Beck, Giddens & Lash, 1994; Giddens, 1991), along with a related concept of “transitology” from comparative and international education (Cowen, 1996 & 2006), for unveiling structural forces that might be shaping transnational Chinese students’ educational aspirations and experiences across two vastly different yet closely connected geopolitical systems in the age of globalization.

Second, the constructive developmental psychology theory of “self-authorship” as first proposed by Robert Kegan (1994) and later expanded by Marcia Baxter Magolda (2004) for examining closely and holistically transnational Chinese students’ critical thinking development—not only as a cognitive process but also as a meaning-making interpersonal and intrapersonal process with potential significance for themselves and the different worlds they straddle.

Third, Dewey’s (1916) philosophical conception of “critical or reflective thinking” and its connection with a more participatory and inclusive vision of “democracy” for understanding the educational environment in which critical thinking *is* being fostered in students’ experiences and *can be* better cultivated as part and parcel of a creative and democratizing force beneficial for the individual and the globalizing community.

The extensive discussion in the theoretical framework chapter will further demonstrate how each of the theories drawn from the three disciplines highlight—from their unique disciplinary perspectives—the dynamic relationship between knowledge, self, and society. As such, these theories point to a necessarily holistic framework, which will be further explored in the conclusion chapter, for considering the direction of critical thinking education in the late modern era.

5. Research Method & Population

As much of this dissertation entails an in-depth qualitative study that focuses on the learning experience and perception of critical thinking in a particular population ("a bounded system")—i.e., transnational Chinese undergraduates at a research university in the U.S.— the research meets the basic criteria for a qualitative case study. A research case study, according to Merriam (2009), can be described as "an in-depth description and analysis of a bounded system"—which can be "a single person who is a case example of some phenomenon, a program, a group, a single entity, a unit around which there are boundaries "(p. 40). In addition, the case study approach is particularly suitable for this dissertation project, since this research is focused on a holistic and comprehensive characterization and explanation of the interacting factors and/or possible causes that contribute to the phenomenon or case under study (Merriam, 1998; Yin, 2018).

The study population consists of transnational Chinese undergraduates at West Coast Research University (WCRU). The sample includes several distinct groups of Chinese citizens in the U.S.: students with immigrant status (or permanent residency in the States), "parachute" students (who started studying abroad at a younger age, before college), and the more common "international Chinese students" (who came to study abroad for college). The participants grew up in different parts of China, came from varied social economic backgrounds, and received a range of educational background before arriving at WCRU. In addition, a significant portion of the participants were transfer students, who were enrolled for about two years at a local community college before enrolling in WCRU for their junior and senior years.

Most of the study participants were recruited through the registrar's office at WCRU, which distributed the research flyer via a mass email to all undergraduate students with a Chinese passport. Research data was collected over a period of one academic year (Fall 2017 to Spring 2018) and consisted primarily of one detailed online questionnaire and two semi-structured interviews, each of which lasted 1-1.2 hours on average. In addition to students' direct responses, a small amount of supplemental data was also collected from multiple sources: e.g., club activity and class observations, interviews and conversations with course instructors, course syllabi, and general academic (GPA and major) records of all the Chinese students at the university from the registrar's office.

Of the 31 participants who completed the questionnaire and two interviews, only the 21 upper-division (juniors and seniors) students were analyzed for this dissertation, due to time constraints. The data coding and analyzing process of the 21 cases took 3 stages to complete, during which I experimented with various coding strategies and alternative analytical methods for an in-depth understanding of the individual cases and the group as a whole. While the details of this iterative process are explained in the method chapter, a brief overview can be explained as follows: for the preliminary stage, data from each case or participant were transcribed (since most of the interviews were conducted in Chinese) and organized largely by a set of "structural codes" closely aligned with topics that were consistently explored in the questionnaires and interviews. The coding process started in Dedoose, an online software for data analysis and management, and was later transported into an Excel document for its more accessible and at-a-glance format. I also applied "magnitude coding" to the organized data in Excel by using different colors (see Appendix 7) which provided a quick way for pattern findings that became

particularly useful for the last stage of analysis and writing. In addition, a case report was created consistently for each individual case, documenting all the categorized data and analytical memos for each participant. The case report also became a quick way to compare the cases for general patterns of findings.

When the first stage was not yielding sufficient explanation or insights into the cases and patterns, however, a second stage of more intensive coding and analysis was initiated. In this stage, an “eclectic coding” approach was used, which entailed a combination of various coding strategies; namely, initial coding, process/causation coding, emotion coding, value coding, and versus coding. The detailed and ground-up coding approach slowed down the analysis process significantly but yielded rich analysis, which led to the writing of chapter 5 on the two in-depth case analyses, Jiayi and Claire. During this stage, I also began to use an alternative method of analysis called “narrative profile,” a form of storytelling from the data, that allowed for a more comprehensive and holistic understanding of participants’ experiences and perspectives. In addition, as I kept updating the data and analysis for each case in the Excel document under headings (columns) that reflected points of interest, I also started to rearrange the cases (rows) by their varied demonstrations of critical thinking into three fairly distinctive groups. The justification for this rearrangement, which would have an impact on the later general pattern findings, resulted in a second round of focused analysis of all the cases around the themes of critical thinking and selfhood. The write-up of the justification became the long chapter 6 on group analysis and an extensive exploration of the varying practices of critical thinking and manifestations of the self.

Based on the understanding of the data from these two rounds of coding and analysis, I created a consolidated and streamlined codebook—drawn from the detailed code tree that had emerged from the two in-depth cases and a set of codes from the group analysis—for the final analysis. The abbreviated code book guided the organization of the data from all the cases for a final analysis, which helped to fine tune and self-correct the general patterns that had already emerged in the Excel document (that had been updated since the first stage of analysis) and in my knowledge of the cases. The general patterns confirmed by the third stage of coding and analysis became the basis for the last two chapters of the dissertation.

Research trustworthiness and rigor (otherwise known as validity and reliability) of this dissertation project is ensured in the following ways: First, a number of different triangulation strategies were used in the data collection and analysis process, such as triangulation through several rounds of interviews (including the detailed questionnaire as a preliminary to the later interviews), through varied data sources, and through three theoretical/disciplinary lenses. Second, the follow-up interview allowed me to member-check with the participants on the information and reflection they had previously provided, and a more extensive member-check was conducted with two participants for the in-depth case analyses during and after the write-up. Third, the research process is made transparent, to the extent possible, through a detailed account of the iterative coding process (chapter 4), a rich description and careful analysis of the cases (chapters 5 & 6), and a compilation of various questionnaire and interview protocols as well as code books used for data collection and analysis (appendixes 3-8).

6. Chapter Outline

The rest of the dissertation consists of the following chapters:

Chapter 2 provides a literature review in three parts: The first part provides a comprehensive overview of the central debates and conceptual changes within the critical thinking movement since the 1970s. The second part explores, alternatively, perspectives—philosophical, psychological, economic/global—that are note often discussed extensively in the typical literature on critical thinking. The third part discusses literature on Chinese students' experiences abroad in general and with critical thinking in particular. The extensive literature review on critical thinking paves the groundwork for addressing the reconceptualization of critical thinking question (or research question 3) in the conclusion chapter.

Chapter 3 explains in details the dissertation's hybrid theoretical framework and how each disciplinary theory shaped the research design and interpretation.

Chapter 4 describes in details the qualitative case study approach, coding methods, and research rationale for the various steps that were taken in the data collection and analysis process.

Chapter 5 contains in-depth analyses of two contrasting cases, Jiayi and Claire, who exhibited not only different levels of understanding and practice of the critical thinking but also opposite expressions of selfhood. The two cases are described with rich details of their cross-cultural background and learning contexts, along with careful analysis of their critical thinking, selfhood, and the connection between the two aspects. As the cases are written initially to showcase the overall design of the project, each case contains a findings section and a discussion section that takes basic analysis of the data further by interpreting them through the

interdisciplinary theoretical framework for a possible reconceptualization of critical thinking. In many ways, the two in-depth cases cover major topics of interests and address all three research questions proposed by the dissertation. Therefore, this chapter can be read as a stand-alone, miniature version of the project.

Chapter 6 categorizes students into three groups and describes how the groups exhibited varying levels of understanding and practice of critical thinking across the domains—academic, everyday life, and/or sociopolitical. Groups 1 and 3 are explained first to provide both ends of a spectrum of critical thinking conceptions and applications. These two parts of the chapter is followed by the last and longest part on Group 2 (also the largest of the groups), which is further divided into four subgroups, each exhibiting unique characteristics in terms of selfhood and critical thinking. This chapter of detailed analysis of the groups continues the expand upon the connection between critical thinking development and selfhood that emerged from the write-up of the previous chapter or the analysis of two individual cases. Moreover, the group analysis also provides justification for the data or case organization that would later shape pattern recognition and analysis for the last two dissertation chapters. The detailed analysis in this chapter also address the two empirical research questions proposed in the dissertation.

Chapter 7 describes general patterns that can be discerned from the data, providing summary answers to research questions 1 and 2—namely, transnational Chinese students' learning process and perceptions of critical thinking, factors that may have contributed to their varied practice of critical thinking, and the role critical thinking may have played in their overall development as college students in cross-cultural context.

Chapter 8 concludes the dissertation by situating the study within the larger transnational Chinese migration context, by bringing the findings in dialogue with the theoretical lenses that have shaped the dissertation, and by suggesting a possible reconceptualization of critical thinking that can better support students in the global age.

Chapter 2. Literature Review

Due to the dissertation's cross-cultural perspective on the learning experiences of a transnational student group and its theoretical interest in reconceptualizing critical thinking for a diversifying global student population, the literature review chapter may be significantly longer than a typical dissertation that is either philosophical or empirical. The following literature review consists of three parts. Both Part A and Part B focus on critical thinking; however, while Part A follows a traditional format characterized by comprehensiveness—covering the historical origins, central debates, and current developments in critical thinking as a subfield of education—Part B proposes an alternative literature review that is more argumentative. By exploring sources not often extensively discussed or brought together in a typical literature review, the alternative literature review of Part B makes a case for a less typical approach to critical thinking—i.e., in relation to selfhood or self-development—that this dissertation explores. Part C reviews literature on the overall experiences of Chinese students abroad and issues pertaining to their acquisition of critical thinking in particular.

(Part A) An Overview of Literature on Critical Thinking

"…the excesses that inevitably occur in any movement" (Ennis, 2001a, p. 6)

1. Early History Before the Critical Thinking Movement

Educational theorists often attribute the origin of critical thinking to a lineage of prominent figures in Western philosophy, particularly Socrates and John Dewey. The rich conceptions of critical thinking envisioned by these philosophers deserve substantial explication (as the later alternative review will explore); however, literature reviews in this subfield of educational theory and research typically gloss over the intricate philosophical roots and jump right into the more contemporary debates and scholarship that came out of what is commonly known as "the critical thinking movement" (Davies & Barnett, 2015; O'Sullivan & Guo, 2010; Siegel, 1988; Tian & Low, 2011; Weinstein, 1993; Fisher, 2001).[5]

The movement refers to a period of intensive activities in critical thinking research and teaching that peaked around the 1980s to the early 1990s. Scholarly debates, assessment tests, and publications on critical thinking proliferated at the time. A number of philosopher-led organizations promoting critical thinking were established in the 80s, such as the Association for Informal Logic and Critical Thinking (AILACT) and The National Council for Excellence in Critical

[5] Perhaps due various practical reasons—e.g., limited length of an article, consideration for the audience, and area of interest of the researchers—educational research articles and textbooks on critical thinking do not often examine its philosophical roots, such as the context, purpose, and nature of the original conceptions. Scholarly/philosophical works by prominent figures from the critical thinking movement also tend to focus primarily, if not solely, on their conception of critical thinking—often in contrast or in response to the works of others from the movement (McPeck, 1990; Siegel, 1988). Notable exceptions I have encountered, where a limited extent of the philosophical origins are mentioned or explained, are the following works: Biesta (2001), McPeck (1988), Noddings (2012), Paul (1993).

Thinking (NCECT) that are still active today and sponsor annual conferences. Schools, universities, and institutions nationwide launched programs and courses to teach critical thinking. For example, the 1980 Executive Order 338 mandated all California State University students take a unit in critical thinking before graduation. Also in 1983, the College Board that sponsored the SAT also included critical thinking under the name "reasoning" as one of six basic competencies required of college-bound students (Ennis, 2011; Hitchcock, 2018).

Numerous educational scholars attributed the surge of this contemporary interest in critical thinking to Robert Ennis' influential 1962 article published at *Harvard Educational Review* (Biesta & Stams, 2001; Hitchcock, 2018; McPeck, 1981; Noddings, 2012; Siegel, 1988). Yet according to Ennis' own account (2011a), he had by then been working on this concept and its correlating assessment tools for the Illinois Project for the Improvement of Thinking since the 1950s. As the project was part of the progressive education movement[6] that had been applying Dewey's philosophy of education to reform K-12 education since the 1920s, it may be argued that the popularization of critical thinking as a contemporary educational ideal had a much longer incubation period.

Indeed, the "Eight-Year Study" (Aikin, 1942) sponsored by the Progressive Education Association is one of the first documents that mentioned "critical thinking" (in replacement of

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[6] The progressive education movement was inspired by Dewey's philosophy education and became a national force for educational reform between the 1920s and 1950s. The progressive education model aims to foster qualities essential for a democratic citizenry: e.g., respect for diversity and individuality, emphasis on experiential and experimental learning, and cultivation of critical and socially engaged intelligence. The movement as a whole was widely attacked and disintegrated in the 1950s. This was because of educational anxiety and cultural conservativism grew during the cold war, especially when the USSR (current Russia) in 1957 sent the satellite Sputnik before the U.S., and the popularity of the more traditional subject-matter approach to education revived once again. Over the years, interests in the progressive model and rediscovery of Dewey's work persisted. The more contemporary promotions of critical thinking and experiential learning, among others, are arguably offshoots from the original movement and Deweyan approach to education.

Dewey's more-often-used "reflective thinking"[7]). The momentous study examined the performance of progressive and traditional high schools in the 1930s and found critical thinking fostered by the progressive model to be a factor for students' later success in college. Around the same period, Edward Glaser, an educational psychologist at the Teacher's College, published his dissertation titled *An Experiment in the Development of Critical Thinking* in 1941 and used a concept of critical thinking (which will be discussed more closely in a later section) that was closely aligned with Dewey's (Fisher, 2001; Hitchcock, 2018). This book served as the foundation for the *Watson-Glaser Critical Thinking Appraisal*, published in 1964,[8] which became the most widely used test of critical thinking (Fisher, 2001; King & Kitchener, 1994).

In addition, a number of earliest college textbooks with the name "critical thinking" in their titles also appeared in the 1940s. For example, *Critical Thinking: An Introduction to Logic and Scientific Method* was published in 1946 by Max Black, a leading analytic philosopher at Cornell University. The book consists of three parts—deductive logic, language (e.g. logical fallacies, ambiguity, and definition), and inductive logic/scientific method; each part contains

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[7] While I have not seen a detailed explanation or justification for the use of "critical thinking" in replacement of "reflective thinking" in the literatures, it has often been mentioned by scholars that the two concepts were used interchangeably by Dewey himself. Although not necessarily contending against this common understanding of the interchangeability of the two terms within Dewey's work, Hitchcock (2018) seemed to suggest that Dewey in his later period preferred the broader term "reflective thinking" over "critical thinking": "Without explaining his reason, Dewey eliminated the previous edition's [i.e. Dewey in 1933 revised his first edition of *How We Think* published in 1910] of the words 'critical' and 'uncritical', thus settling firmly on 'reflection' or 'reflective thinking' as the preferred term for his subject-matter. In the revised edition, the word 'critical' occurs only once….being critical is thus a component of reflection, not the whole of it" (p. 65). Given Dewey's own preference of "reflective thinking" over "critical thinking" in his 1933 revision of *How We Think*, it seems all the more surprising that the Eight Year Study, which also began in the 1930s, under the auspice of Progress Education Association spearheaded by Dewey should use "critical thinking" instead. Further examination of the original documents would be needed to determine whether the study indeed use the two concepts interchangeably or examined only partial aspects of Deweyan "reflective thinking," i.e., those that belong to "critical thinking" as perceived by Dewey.

[8] The Watson-Glaser Critical Thinking Appraisal was co-authored in 1964 by Glaser and his teacher Goodwin Watson, a prominent educational psychologist at the Teacher's College, Columbia University.

concrete applications from everyday life and speech with the aim to make logic accessible, fun, and effective for the improvement of general reasoning.

Not long after, Benjamin Bloom, an educational psychologist at the University of Chicago published a hierarchy of six cognitive abilities and objectives known as "Bloom's taxonomy"[9] in 1956. The taxonomy became influential and is still in use as a tool for assessing educational objectives and outcomes. Although not using the specific term "critical thinking," Bloom demonstrated familiarities with similar works done by Dewey and others, as he stated that what "has been labeled 'critical thinking' by some, 'reflective thinking' by Dewey and others, and 'problem solving' by still others had been called by others, we have used the term 'intellectual abilities and skills'." (Bloom et al., 1956, p. 38).[10] A number of six major categories of cognitive abilities—e.g., analysis, synthesis, and evaluation—overlaps with those typically recognized as aspects of critical thinking.

It may be thus argued, even though progressive education as a distinctive movement dissipated in the 50s, features of Dewey's work and the progressive education model—i.e., the emphasis on thinking over memorization and on learning that is useful, engaging, and beneficial for students—continued to expand, inform, as well as reform the American education sector. It also seemed likely that critical thinking as part of the progressive education model that promoted

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[9] The six categories are knowledge, comprehension, application, analysis, synthesis, and evaluation. The original 1956 taxonomy was revised in 2001, and the last three categories (analysis, synthesis, and evaluation) have been called collectively as "higher-order thinking skills" (Hitchcock, 2018, p. 69).

[10] It may be worth mentioning that Bloom's taxonomy was based on his training and work as a psychologist at the University of Chicago in the 40s and 50s. He worked with a team of college examiners to develop various taxonomies (e.g. cognitive and affective), with the purpose of improving the quality of university education through better assessment and requirements. The team was headed by another prominent educational psychologist Ralph Tyler, who had contributed to the Eight Year Study prior and became the founding figure in the field of curriculum development and evaluation (Nowakowski, 1983).

the development of intellectual abilities became more widely recognized. Although not often mentioned in the critical thinking literature dominated by educational theorists, a substantial amount of direct or indirect promotions of critical thinking in this early period[11] came from educational psychologists, like Glaser and Bloom.[12] Through the development of correlating psychometric assessment tools, whether in the form of tests or taxonomies, critical thinking and other related intellectual abilities became tangible educational objectives that can be evaluated for their benefits and thus more persuasively incorporated the school curriculum.

Yet from the perspective of critical thinking theorists or philosophers of education that came to dominate the contemporary debates on critical thinking, the decades before the seemingly sudden resurgence of interest in critical thinking in the late 70s were relatively obscure or insignificant. As Ennis (2011a) summarized: "In spite of the opposition to, and the disintegration of, the progressive-education movement, there were continuing expressions of interest in critical thinking in the 1930's through the 1970's, mostly by philosophers" (p. 6). Critical thinking remerged in the late 1970s, for it was perceived to offer "the rigor, reflection,

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[11] Early work and publications on critical thinking came from philosophers or psychologists associated with elite universities and research centers. Over the years, some of the schools of education at these top universities that had sponsored research on critical thinking no longer exist, such as University of Chicago and Cornell University. Current interests in critical thinking seem to happen more often at smaller or less research-intensive institutions in the U.S. and other English-speaking countries on the one hand, and dispersed to the business sector and elite universities in the developing countries at on one hand. As Davies and Barnett (2015) observed: While "critical thinking in higher education is a global concern" (p.2) and "[t]he US business community, it seems, is well appraised of the importance," the interest and "its perceived value may be languishing in the academy" (p. 4). In the state where the author did her research, courses on critical thinking seem to be typically offered at the community colleges and the state universities but not at the top public universities (the author did not check elite private universities or colleges, as there were a few in the location). The reason and implication of this local and global shift of locations where critical thinking is currently taught and researched is beyond the current dissertation project but calls for further investigation.

[12] It is not incidental that these educational psychologists played a significant role in promoting promotion critical thinking and other cognitive skills and often adopted or were aware of Dewey's work. Dewey was not only a philosopher but also a psychologist, for he was the president for both the American Psychological Association (in 1899) and the American Philosophical Association (1905).

and reasonableness that both the anti- and pro-war forces had ignored" during the tumultuous 1960s and the Vietnam War era (Ennis, 2011, p.7).

Unsurprisingly, Ennis is a philosopher of education; yet unlike most critical thinking theorists, he also worked extensively on developing correlating tests, including the popular Cornell Critical Thinking Test first published in the 1960s. Reflecting on his long career as a key member of the critical thinking movement, Ennis emphasized both the importance of correlating test in propagating critical thinking (Ennis, 2011b, p. 9) and "the dependence of such tests on one's conception of critical thinking" (Ennis, 2011a, p. 6). It was with this understanding of the definition or conception of critical thinking being fundamental to its teaching and assessment, along with the growing cultural recognition and educational demand for better thinking, more educational theorists or philosophers became involved in the critical thinking movement. The following literature review will now shift the focus to reflect the major philosophical debates that made critical thinking a highly contested and dynamic concept.

2. First Wave: Critical Thinking as Logic Skills

While educational theorists and practitioners have since agreed on its importance, critical thinking remains to be one of the most contested concept in education (Atkinson, 1997; Noddings, 2012; Tian & Low, 2011). The challenge arises not only from the divergent opinions on *how to teach critical thinking*, but also on *what it is*. Notable figures in the movement offered their definitions and/or conceptions (and often times its revision as well, since many who worked on the topic over decades and modified their positions in response to one another's views and challenges), and together a myriad versions of what critical thinking is or can be have been

proposed. Some theorists have even offered different ways for organizing the various conceptions of critical thinking into more easily discernable or graspable patterns. Drawing upon their insights, the following review and discussion delineate the major conceptions and central debates within the critical thinking movement since the 1970s.

Richard Paul (2011),[13] a key proponent of the critical thinking movement, grouped the various conceptions and research within the on-going movement into three distinctive yet overlapping "waves." According to Paul, the first wave (in the 70s and the early 80s) was dominated by philosophers whose primary interests were in logic—formal or informal.[14] He asserted that most of these early proponents perceived critical thinking in a "generally narrow and specialized" way as logical and careful analysis of explicitly stated arguments and persuasions, with minimum consideration of "background context" or what critical thinking can provide in "a full range of the contexts in which thinking is at work in human feelings and behavior"—i.e., to everyday situations and problems (p.1).

A prominent example of the first wave or critical thinking as informal logic would be Robert Ennis' early work. In his highly influential 1962 paper, Ennis defined critical thinking as "the correct assessing of statements," demonstrating a conspicuous emphasis on logical

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[13] The article has been cited as 2011 in Davies & Barnett's handbook (2015), even though the original article by Paul may have been published earlier online, given the content or references in the article. However, as I was not possible to discern the exact publication year through online sources that also contain this article, I follow the citation provided by Davies and Barnett.

[14] Noddings (2012) explained the difference between formal and informal logic in the following way: "In formal logic…we are concerned with *forms*, not the content, of expressions, and we deal with statements (symbolically represented) that can be judged true or false. All other approaches to logic are 'informal'" (p. 92-93). While the root of informal logic as reasoning for effective argumentation and persuasion may be traced to ancient times, such as Plato's Socratic dialogues and Aristotle's work on rhetoric, the more contemporary subfield of informal logic may have been further "developed in and for critical thinking and informal logic courses" (Paul, 2011, p. 4). A course on informal logic or on critical thinking as informal logic would typically include topics on deductive and inductive logic, definitions, fallacies, argument identification and analysis, etc.

consistency, clarity, and rigorous analysis. The bulk of the article provides a detailed explanation of the 12 aspects or skills entailed in critical thinking, such as judging "whether there is ambiguity in a line of reasoning," "whether certain statements contradict each other," "whether something is an assumption," and "whether an observation statement is reliable" (p. 84). Ennis further asserted that to make a good judgment in each aspect, one would often need to apply certain criteria with reference to the "background purpose." For example, in terms of warranted evidence, depending on the intended purpose or stake involved (e.g. requiring in-class instructions during a normal flu season vs. during a deadly pandemic), different stringency of criteria may be applied to the evidence needed for judgment or decision-making.

Ennis' paper (1962) was both a demonstration of and a call on other philosophers of education for "a comprehensive and detailed examination of what is involved in making judgments about the worth of statements or answers to problems" (p. 82). He made it clear to his readers that this area of educational research had been until then dominated by psychologists and was insufficiently explored. As Ennis' work was "an important factor in the resurgence of interest in critical thinking as an educational ideal…[and] an important point of reference for subsequent debates concerning critical thinking and education" (Biesta & Stams, 2001, p. 59), its logic and analytic orientation left a definitive mark on how critical thinking was perceived and promulgated in the first wave and in the subsequent efforts since then.

For example, the 1980 Executive Order 338 adopted a similar approach to critical thinking that was implemented throughout the California State University system:

> Instruction in critical thinking is to be designed to achieve an understanding of the relationship of language to logic, which should lead to the ability to analyze, criticize, and advocate ideas, to reason inductively and deductively, and to reach factual or judgmental conclusions based on sound inferences drawn from unambiguous statements of

> knowledge and belief. The minimum competence to be expected at the successful conclusion of instruction in critical thinking should be the ability to distinguish fact from judgment, belief from knowledge, and skills in elementary inductive and deductive processes, including an understanding of the formal and informal language and thought (Executive Order 338, p.3).

In terms of curriculum development, the educational policy required an undergraduate course on critical thinking that was and still is taught primarily as informal logic.[15] As Paul (2011) observed, the policy had proposed a set of "broad and ambitious" educational ideals, yet adopted "a fairly narrow and specialized way" (p. 2) or conception of critical thinking to fulfill its ideals.

Speaking from his teaching experiences, Paul argued that no short-term critical thinking course—particularly one that focuses on logic—can adequately prepare students to distinguish "fact from judgment, belief from knowledge" and foster critical thinking as a habit of mind that would then be widely used across academic disciplines and in everyday life. Yet in spite of consistent warnings from educational theorists—e.g., Paul and Ennis (especially in his later work, as explained later) alike—against such a specialized and quick-fix approach to the teaching of critical thinking, the early conception of critical thinking as informal logic skills became deeply lodged and remained dominant in the way critical thinking has been commonly perceived and taught locally and globally since then (Ennis, 2011b; Hitchcock, 2018; Kuffis, 1988; Paul, 2011; Song, 2018).

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[15] I checked a number of California State University course catalogues online and found that 3 semester units (equivalent to a course) of critical thinking is still required as a GE Basic Skill, under the title "Critical Reasoning" that emphasizes argument analysis, deductive and inductive logic, and common fallacies. From the dissertation, the author gathered that while critical thinking or reasoning is taught at the state university and community college levels, this policy requirement does not apply to the more prestigious public universities. There seems to be an implicit assumption that either the students who attend the competitive universities come with sufficient critical thinking or they would be adequately prepared through the undergraduate curriculum. As the study finds out, the assumption is not warranted, for many students did not receive adequate instruction and practice of critical thinking before or during college.

3. Second Wave: More Diversified and Contested Conceptions of Critical Thinking

In response to the limiting vision of critical thinking conceptualized in the first wave, expanded views of what critical thinking is and how it should be taught emerged during the "second wave" (in the 80s and the early 90s).[16] These changes occurred because a more diverse group of scholars coming from different intellectual backgrounds, disciplinary training, and educational sectors (e.g., policy, teaching, and/or theory) contributed to the development of critical thinking as a resurgent goal for education in a pluralistic and democratic society.

(1) Critical Thinking as Skills + Dispositions

Empirical research conducted by educational psychologists found that abilities and dispositions are distinct, meaning one can exhibit critical thinking abilities without correlating dispositions (i.e., inclinations needed to use the abilities or skills) [17] or, vice versa, one may have the dispositions without the necessary abilities fully developed (Ennis, 1996). This empirical finding contributed to an expanded understanding of critical thinking in the second wave as a habit of mind that entails both skills and dispositions, such as "open-mindedness," "inquisitiveness," and "intellectual honesty" (see the chart at the end of this review segment

[16] The timeline of the 3 waves in the critical thinking movement, including the demarcation of the second wave (from 1980 to 1993, to quote precisely), was proposed by Paul (2011). As will be demonstrated later, not every critical thinking theorist perceives the movement in this way or would necessarily agree with Paul's interpretation of when each wave took place and whether there were indeed three waves as demarcated.

[17] While "disposition" is commonly defined as an inclination or "a tendency to do something, given certain conditions" (Ennis, 1996), some psychologists have also included "sensitivity" (Perkins, Jay & Tishman, 1993) as part of the inner mechanism or inclination that prompts the usage of one's critical thinking skills or abilities. It may be argued, as we shall see more later in King & Kitcher (1994), that without sensitivity to or recognition of circumstances that call for thoughtful responses and closer examination, the process of critical thinking may not even take place.

that demonstrates a more detailed account of the various dispositions). While the question of concrete dispositions required of a critical thinker remains contested,[18] the implication of this finding for pedagogy is significant. It suggests that for students to internalize the practice of critical thinking, they would need to receive explicit instruction on how to do critical thinking, practice enough to be skillful at it, and acquire correlating dispositions that would prompt them to use the skills or abilities for judgment or decision-making. Therefore, an isolated course of critical thinking as informal logic would not likely be sufficient to develop both the skills and the dispositions, especially since dispositions may take even longer to cultivate.

More expansive conceptions of critical thinking, aligned with empirical findings, were proposed around the same time by philosophers during the second wave. For example, Harvey Siegel (1988) advocated critical thinking as an educational ideal for the purpose of cultivating critical thinkers or beings, highlighting its value components. Even Ennis, in his revised conception of critical thinking in 1987, offered a fuller conception of critical thinking beyond the mere cognitive elements stressed in his earlier conception. Ennis redefined it as "reasonable reflective thinking focused on deciding what to believe or do," shifting the focus from the original emphasis on assessment of statements to a broader concern with belief and action that constitutes "a very important part of our personal, civic, and vocational lives, and should receive attention in our education system" (Ennis, 2011a, p. 10). Along with this new definition, Ennis

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[18] According to Ennis (1996) who later worked extensively on critical thinking disposition assessment tools, dispositions are "unobservable," which presents greater challenge than critical thinking skills in terms of assessment: "we want students to evidence them without their realizing that we want them to exhibit the trait" (p. 180). Therefore, multiple-choice tests are not adequate for assessing dispositions, but guided open-ended tests are more promising (e.g. provide students with a scenario and ask them to write about what they think and plan to do, or ask students to make a choice among different options and provide an explanation of their rationale). As will be seen in the later sweeping analysis chapter, this dissertation study used a number of open-ended "tests" or probes to better understand participants' critical thinking practices and dispositions.

also offered a comprehensive list of dispositions as a part of the larger conception of critical thinking and its assessment tools that he was developing. While his revised conception demonstrates a considerable improvement upon the first, it did not generate the same amount of influence. Perhaps it is because, as Ennis (2011b) himself commented, the newer conception largely reflected or echoed ideas that had already been proposed by others in the second wave.

(2) Critical Thinking as a Self-Correcting Rational Process Sensitive to Context

In the same period, Matthew Lipman proposed a definition of critical thinking that overlapped with Ennis' revised version in many ways while offering additional insights from a philosophical perspective. In response to Ennis' new and arguably vague definition, Lipman (1987) proposed a description of critical thinking as "skillful, responsible thinking that facilitates good judgment because it (1) relies upon criteria, (2) is self-correcting, (3) is sensitive to context" (p. 39). Like Ennis, Lipman emphasized the importance of criteria, asserting that critical thinking is trained "thinking that both employs criteria and that can be assessed by appeal to criteria" (p. 40). In other words, both Ennis and Lipman perceived critical thinking as well-structured and rigorous thinking that utilizes criteria to optimize its judgment or outcome (e.g. criteria for warranted evidence or for sufficient clarity); moreover, the quality of one's critical thinking can be evaluated by the criteria or standard used and shared by the community, discipline, or field of inquiry. While Ennis also mentioned the need to consider the "background purpose" or context in which critical thinking is applied, Lipman provided not only a clearer emphasis on this dimension in the definition but also a contestably more elaborate explication of contexts that vary in subtle, diverse, and complex ways—e.g. "exceptional or irregular circumstances and

conditions" and "overall configuration" that may change the meaning and interpretation of a statement or evidence.

Lipman differed from Ennis most in his emphasis on the "self-correcting" nature of critical thinking. Critiquing an increasingly common perception of critical thinking as a "metacognition, or thinking about thinking," Lipman asserted that we may in fact reflect upon our own thinking in a "quite uncritical" way (p. 41). By contrast, critical thinking as the process that leads to good judgment "takes everything into account, including itself"(p. 39). He thus proposed "self-correcting" as the "most characteristic feature" of critical thinking or inquiry, meaning that it is a kind of thinking that "aims to discover its own weaknesses and rectify what is at fault in its own procedures" (p. 41). In short, Lipman seemed to have proposed a more rigorous vision for how critical thinking should be practiced and taught, as he summarized in the end of the article: "Students who are *not* taught to use criteria in a way that is both sensitive to context and self-corrective are *not* being taught to think critically" (p. 43). A qualified critical thinker in Lipman's vision is someone who can think for oneself, improve one's thinking procedure, and come up with good judgments for different situations and contexts.

Lipman's proposed improvement appears to constitute a continual development of the informal logic approach to critical thinking that has continued to dominate the debates in the movement since the first wave. Calling it "a progressive research program" that was becoming deeper and broader in its theoretical interest by the 80s, Mark Weinstein (1993) asserted that informal logic as a growing field of its own that had become "the foundational discipline upon which recent conceptions of critical thinking rests" (p.99). Yet key controversies, some of which continue to this day, also arose from this period; as the following sections explicate, significant

challenges to this approach of critical thinking came from philosophers both within and outside of the informal logic tradition.

(3) Critical thinking as General vs. Discipline-specific Thinking Skills

The informal logic approach to critical also entails the assumption that critical thinking is a set of general reasoning skills that is applicable across disciplines and domains—from academic to everyday life. This idea of teaching students explicitly thinking skills that are generalizable, adaptable, and effective for learning and problem-solving had an immediate appeal to educators and the public alike (Fisher, 2001; Noddings, 2012). It contrasts sharply, with obvious advantage, to the more traditional pedagogy which emphasizes rote-learning and acquisition of subject/content knowledge (in areas of literature, history, biology, etc.). The appeal of this view of teaching critical thinking has remained strong to this day, as acquired knowledge can become easily outdated or irrelevant in our rapidly changing world of information and technology.[19] Newer educational concepts such as "21st Century Skills" and "Deeper Learning" continue to promote the idea of teaching general skills that are flexible and transferable across different contexts for problem solving and innovations.

While students are likely to benefit from acquiring skills on how to analyze arguments, detect logic fallacies, and construct warranted claims, educators have also voiced concerns about

[19] Critical thinking theorists from the informal logic camp were not the only ones who advocated a strong pedagogical emphasis on thinking skills. The progressive education movement in the first part of the 20th century not only promoted critical thinking but also aimed to reform American education from its dominant knowledge/content-based approach to a more thinking/inquiry-oriented approach, as advocated by Dewey. The contest between the traditional and progressive model last to this day, with each side being favored as the dominant educational force in different times (e.g. as demonstrated in the earlier example of the fall of the progressive movement due to the Cold War in the 50s and the rise of interest in critical thinking after the Vietnam War in the 70s). Arguably, the current "competence-based" learning, popularized by OECD's PISA test across the globe, is by definition a concept that recognizes the importance of both thinking and knowledge content learning.

the significant limitations in this reductive approach to critical thinking. For example, narrow training in argumentation and rhetoric can encourage sophistry[20] and rationalization of one's existing biases rather than open examination for greater understanding (Kurfiss, 1988; Paul, 1981). Apparently, critical thinking practiced narrowly or wrongly was not uncommon in academia, for it has been dubbed as "the doubting game," in which statements were often dissected, analyzed, and critiqued without fair consideration of the larger context; logic skills were applied to "look for something wrong—a loophole, a factual error, a logical contradiction, the omission of contrary evidence" (Belenky et al., p. 104). Even Ennis, who had purposely left the value component out of his original (1962) conception of critical thinking in order to make it "more manageable" (p. 84; presumably for assessment purposes) submitted a partial concession. In a later paper, Ennis (1996) stated that while it would be an "unreasonable assumption that the concept, *critical thinking*, should represent everything that is good," he also believed that "any educational program that includes critical thinking but not the correlative disposition care about every person's worth and dignity would be deficient and perhaps dangerous" (p. 172).

Value and moral issues aside, the approach to critical thinking as generalized skills faced another, arguably more immediate challenge, coming from none other than theorists espousing the subject-specific approach to education. These scholars questioned the generalizability of

[20] This line of criticism against skillful arguments and application of analytical and rhetorical strategies is not new. The moral struggle against the dominance of powerful sophists in the ancient world undoubtedly fueled the emergence of philosophical inquiry, for vivid accounts against sophists can be found in Plato's works, such as *Apology, The Republic,* and *Sophists*. Like the philosophers, sophists also taught reasoning and persuasion; however, unlike the philosophers, sophists often taught for money, for the purpose of winning arguments rather than truth and moral responsibility. This duel between the sophists and philosophers in antiquity continues to manifest in the modern debates on how critical thinking should be conceptualized and taught. And the continual dominance of critical thinking as primarily "skillful reasoning" (Fisher, 2001, p. 3) and the teaching of it often under "logic reasoning" seems to suggest a persistent neglect of concern for the moral dimension or purpose of critical thinking, as Noddings (2012) pointed out.

thinking skills at the conceptual level and the transferability of critical thinking across situations at the practical level. They also pointed out that students with generalized analytic and logic skills may not be able to think well without sufficient knowledge of a particular subject matter; moreover, what students learn in terms of thinking from one discipline may not be readily applicable in another. John McPeck (1981), for example, denied the possibility of generalized skills and usefulness in teaching critical thinking as such, asserting that "[t]o the extent that critical thinking is not about a specific subject X, it is both conceptually and practically empty" (p. 5). He reasoned that since critical thinking entails justifying one's claims with significant evidence and criteria which vary among different disciplines, what constitutes critical thinking in one discipline may differ substantially from another. In addition, he argued that each academic discipline is a manifestation of critical thinking at its best—the most systematic and effective approach at solving a particular set of human problems. Therefore, critical thinking would be best acquired through subject-specific training that not only transmits a body of disciplinary knowledge but also explicates its epistemic assumptions and methodology by which such knowledge is constructed and justified.

McPeck's trenchant critique of the informal logic approach raised a number of critiques against his discipline-oriented view of critical thinking. Some critics called his proposal "elitist" or "exclusionary" (Noddings, 2012; Weinstein, 1993), pointing out that such an approach to critical thinking would essentially dismiss the values of perspectives of those who do not have disciplinary expertise or academic credentials. And doing so would contradict an essential element of democracy: The legitimacy of ordinary citizens' voice and therefore their participation of political decision-making. Other critics argued that the discipline-oriented approach to critical

thinking assumes that disciplinary knowledge and methodologies are adequate for solving everyday problems, yet "there are crucial human problems not easily situated within one discipline" (Noddings, 2012, p. 99) but rather complex and "ill-structured" (King & Kitchener, 1994). Still other critiques asserted that the pedagogical requirements set by McPeck's approach would be difficult to fulfill, albeit ideal. As Kurfiss (1988) commented, the abilities to accumulate a body of academic knowledge, to use them as evidence, and to grasp the methodological approach of the particular discipline is a perennial educational challenge. This is so because experts and scholars generally find it difficult to articulate such complex cognitive process as they often perform it automatically. In other words, discipline-oriented approach to critical thinking would require significant commitment from both the teacher and the student; therefore, it be beyond the capacity of undergraduate education but more suitable at the graduate level.

At the same time, theorists also recognized the value of McPeck's challenge in prompting reflection on the extent to which critical thinking can be generalized at the conceptual, epistemological, and empirical levels (Hitchcock, 2018, p. 34-35). That is, to what extent concepts typically taught in the informal logic (e.g. distinction between necessary and sufficient conditions) are useful across disciplines; to what extent the epistemic assumptions and criteria for valid evidence and reasoning vary among disciplines; and to what extent critical thinking dispositions and abilities can be consistently manifested in different domains and situations.

These questions led to an evolved consensus among critical thinking theorists. First, while the methodological differences and norms of good thinking may vary considerably from one discipline to another, there are still general critical thinking principles in addition to those that are specific to individual disciplines and domains (Ennis, 2011b; Noddings, 2012). Second,

sufficient background knowledge is necessary for critical thinking of any topic, and the transfer of critical thinking for many students can “occur if—but only if—we teach for it” (Ennis, 2011b, p. 11). Third, conceptually, critical thinking is now recognized to entail three components instead of two (as mentioned earlier): i.e., skills, dispositions, and background knowledge. Last, in terms of pedagogy, the subject-specific approach and thinking-focused approach are not mutually exclusive but both necessary. Critical thinking may be most effectively fostered when it is taught both as a separate course early on—to ensure basic and generalizable aspects of critical thinking are understood by students, which takes substantial amount of instruction and practice—and followed by embedded training in “critical thinking across the curriculum” or subject-matter courses (Ennis, 2011b, p. 13).

(4) Critical Thinking in the “Weak” Sense vs. “Strong” Sense

In a different vein, Richard Paul (1982) challenged the dominant skill-oriented approach to critical thinking, “as a battery of technical skills which can be mastered more or less one-by-one without any significant attention being given to the problems of self-decision, background logic, and multi-categorical ethical issues” (p. 3), as teaching critical thinking in the “weak” sense. He warned that this common approach to critical thinking may lead to a number of grave problems—i.e., “sophistry” (manipulation of argumentative tactics to maintain one’s biases and advance one’s vested interests, as mentioned earlier) and “dismissal” (rejection of critical thinking and rational reasoning all together in response to the way it is practiced as sophistry and resort to feelings or intuitions). Paul observed that while debates on critical thinking have rarely discussed the moral dimension in the practice of critical thinking, students at the university level

often have "highly developed belief system[s] buttressed by deep-seated uncritical, egocentric and sociocentric habits of thought" by which they make meaning of their experiences and interpret the world (p.3). As it is often difficult and even traumatic to examine one's deeply entrenched beliefs and biases, Paul believed that unless students are explicitly encouraged to examine themselves, it is more likely that as a result of learning argumentative skills, they "become more sophistic rather than less so, more skilled in 'rationalizing' and 'intellectualizing' the biases they already have" (p.3).

In response to these observable problems, Paul advocated teaching critical thinking in the "strong" sense, by which he meant the following:

> On this alternative view one abandons the idea that critical thinking can be taught as a battery of atomic technical skills independent of egocentric beliefs and commitments. In place of 'atomic arguments'[21] one focuses on argument networks (world views); in place of conceiving of arguments a susceptible of atomic evaluation one takes a more dialectical/dialogical approach (arguments need to be appraised in relation to counterarguments, wherein one can make moves that are very difficult to defend or ones that strengthen one's position). (p. 3)

To think critically in the strong sense would entail examination and awareness of one's own beliefs and assumptions and the role misconceptions and vested interests play in one's reasoning process. Critical thinking as such would also necessitate serious consideration of others' points of view as a way to reflect upon and improve one's own thinking and belief system. Echoing the Socratic dictum "know thyself," thinking critically then become a rational process that also induces self-knowledge.

[21] Paul's earlier phrase "autonomic technical skills" can be understood as the "standard 'fallacies' approach" to critical thinking (Siegel, 1988, p. 143), as often evidenced by a quick-fix course on critical thinking as formal/informal logic. His phrase "atomic arguments" can then be understood as assertions/arguments that analyze other arguments out of their contexts and narrowly focusing on detecting fallacies, logical or otherwise.

Many theorists wholeheartedly acclaimed Paul's advocacy for teaching and practicing critical thinking in the "strong" sense, describing it as an important contribution to the ways in which critical thinking was conceptualized in the movement. A comprehensive understanding of critical thinking evolved to include not only the logical and epistemological but also the psychological and social dimensions. At the same time, some also raised a number of substantial concerns expressing different theoretical perspectives. For example, Harvey Siegel (1988) argued that following the rationale of Pauls' "dialectic/dialogical approach" to critical thinking that entails understanding the "world views" of one's own and of the others, "the critical thinker [would be] left with nothing to do save see the issue from the perspective of the other's world view? Why should the world view which favors critical thinking be regarded any more highly than those which favor (say) dogmatism or close-mindedness?" (p. 14). Siegel concluded that such practice of critical thinking would lead to an epistemological crisis or a state of "self-defeating relativism…undermin[ing] the very possibility of developing a conception or theory of critical thinking" (p. 15). To "save" Paul's approach or restore the seemingly necessary epistemological justification for critical thinking, Siegel suggested that the "dialectical" approach or strong sense of critical thinking to be practiced without having "to recourse to talk of world views" but focused, arguably as Socrates had done, on "knowing oneself and critically examining one's own basic beliefs and presuppositions" (p. 143). In other words, critical thinking would not be treated as something relative, i.e., as an extension of another world view; rather, it would be perceived as something universal, i.e, a systematic rational appraisal developed from "the unproblematic intuition that even very basic beliefs, such as those which make up the substance of world views, admit of rational criticism and appraisal" (p. 15).

(5) Multitude of critiques from the "outside": The Bias and Value Questions

In contrast to Siegel who suggested that Paul's conception might be going too far, other critical thinking theorists have challenged Paul's "strong" sense of critical thinking as being not strong enough. These theorists often came from various philosophical perspectives outside of the informal logic or analytic tradition that has dominated the critical thinking movement, such as postmodernism, feminism, (neo)pragmatism, among others (Biesta & Stram, 2001). For example, Mark Weinstein (1993), an informal logician with a postmodern[22] sensibility, commented that while "Paul's account exhibits a conceptual richness," it still "retains a core commitment to critical thinking in the general sense" (p.101). In other words, like the earlier critical thinking theorists, Paul also assumed a set of generalizable reasoning/logic procedures or principles that transcends disciplines, domains, or forms of discourse. Such assumption or view of critical thinking begs the very question of "egocentricism and sociocentricism" that Paul claimed to address through critical thinking in the "strong" sense. Weinstein questioned whether elements or skills of critical thinking prescribed by Paul and others are indeed general/universal or might they be "discipline-specific," "cultural specific," "class specific," and "Eurocentric, androcentric, anglophilic, elitist, intellectualistic, and so on?" (p. 110). From Weinstein's perspective, in assuming the universality of a "dialectic/dialogical approach" or "rhetorical pose"

[22] In her book *Philosophy of Education,* Noddings (2012) defined "postmodernism" as "a mode that shakes the whole structure of modern thought. It challenges cherished assumptions, methods, attitudes, modes of thought, and values" (p. 81). For example, postmodern thinkers reject "grand narrative" or "absolute truth" in favor of "mini narrative" and "local truth." They also abandon the simple notion of knowledge as something neutral, universal, or "all-encompassing;" instead, they emphasize "the sociology of knowledge—how knowledge and power are connected, how domains of expertise evolve, who profits from and who is hurt by various claims to knowledge, and what sort of language develops in communities of knowledge" (p. 78).

to critical thinking, theorists like Paul might “project the self-assurance of the professional academic, to the detriment of its sensitivity to available alternatives?” (p. 110-111). That is, valuable alternatives such as forms of critical expression beyond argumentation and rational reasoning, such as youth resistance and critique of the dominant culture expressed through dance and rap videos, at “the level of their bodies” (p. 117).

Echoing Weinstein’s critique, feminist philosopher of education Neil Noddings (2012) also challenged the primacy of argumentation in the typical conceptualizations of critical thinking. She asserted that argumentation “governed as it is by rules and criteria laid down by authorities in a particular domain, tends to exclude voices, words, and pleas from those who do not use the standard forms” (p. 80). It would be then a “totalizing act” or a form of domination of the other to assume that all forms of criticality or thinking, insofar as it can be called “critical,” must submit to the principles or criteria delineated by logicians or analytic philosophers. From her perspective, Paul and Siegel do not fundamentally disagree, for while Paul’s conception may suggest epistemological “ ‘relativism’ in the application of criteria for critical thinking, [it does] not in the criteria themselves” (p. 96). In other words, both theorists advocated a totalizing style of critique where the criteria prescribed by informal logicians or analytic philosophers are perceived as ideal, ultimate, and thus universal.

In addition, citing fellow philosophers such as Richard Weinstein and Jane Roland Martin, Noddings advanced further claims that not only do philosophers often disagree on “what constitutes the best argument,” but also it would be problematic to “assume that a bit of thinking is morally acceptable simply because it is adequate ‘critically.’” (p. 101). What was then largely

missing in the central debates on critical thinking is the concern for its purpose, which to Noddings, along with many other feminist and postmodern scholars, is a moral one:

> [T]he purpose of strong critical thinking is not only or always to produce the best argument but to connect with others in a way that would make the world demonstrably better—less violent, less cruel, and less insensitive to the pain around us. This does not mean that we should wash out all the epistemological glue that holds our arguments together but, rather, that we should learn to converse in a variety of modes, not all of which are subject to the criteria of argumentation. Looked at this way, critical thinking is bigger than argumentation and different even from argumentation supplemented with intellectual and moral virtues. It becomes the kind of thinking that can 'let the Other be,' as Derrida puts it, in all his or her otherness" (p. 103).

As the ultimate purpose of critical thinking is to forge greater understanding and connection with others, the forms in which such thinking takes or criteria it follows should be more flexible. Therefore, critical thinking in the strong sense that is morally directed should not have to stay within the confine of ideal argumentation as proposed by informal logicians.[23] Not denying the importance of getting "the argument right (and that is certainly *one* aim of critical thinking)" and persuading others of one's position or belief, a morally-oriented critical thinker in Nodding's vision would be open to converse with others in varied ways that sometimes may "bear little resemblance to the arguments currently described as critical thinking" (p. 105).

Arguably, critical thinking as Noddings proposed may be called a human-centered approach, in contrast to the more common argument-centered approach that has long governed the movement and the teaching of critical thinking to this day. Yet as Biesta & Stams (2001) asserted, feminist and postmodern theorists "have not done this [i.e., critiquing the conceptions

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[23] In terms of teaching critical thinking as such, i.e. for the cultivation of moral development and human connection, Noddings proposed "pedagogical neutrality," where teachers present not only all sides or arguments on a given topic or controversy but also the varied criteria by which these arguments may be evaluated or defended. To insist on "the application of particular criteria" or "the cannons of evaluation accepted in either general or domain specific critical thinking" (p. 104) would lead to weak critical thinking.

of critical thinking dominated by informal logic], so it must be stressed, in order to reject the idea(l), but rather to come to a more encompassing articulation—a 'redescription' (Thayer-Bacon, 1998)—of it" (p. 59). In other words, these theorists were not advocating for an abandonment of critical thinking, but an improvement or reconceptualization that is more open to the diverse forms in which criticality can be expressed, more inclusive of the other and concerns that are interpersonally or morally oriented, and more critical or self-examining of the assumptions or evaluative criteria in one's own thinking.

(6) Responses to the Challenge for an Even Stronger Conception of Critical Thinking

In response to the feminist and postmodern critiques, among others, from "the outside," key theorists like Ennis and Paul have expanded their conception of critical thinking to varied extent. For example, Ennis (1996) incorporated "care about every person" as a disposition in his revised conception of critical thinking—but only as a secondary or "associated disposition" rather than a "constitutive" or "correlative disposition." In a rather perfunctory way, Ennis defended his categorization by stating the following: "[M]y sense of our current everyday language tells me that we do not use the term 'critical thinking' this way" (p. 173). A little later, he also added: "[N]ot all good traits [e.g. caring] must necessarily be part of our conception of critical thinking. Critical thinking is not the only good thing. There are many other good things" (p. 173). Yet arguably, critical thinking *has* been promoted in various ways to the public as the good or best thing entailing or connected to many of the virtues we value in a democracy; moreover, key members of the movement like himself *have* played a defining role—e.g., through theories,

textbooks, and assessment tools—on how policy makers implement its teaching and the public conceive the concept "critical thinking."

In addition, Ennis may have substantially misunderstood the kind of "care" advocated by feminists and postmodernists like Noddings.[24] This is demonstrated in the way he defined the newly, and perhaps wearily, incorporated "care" disposition: "Avoid intimidating or confusing others with their critical thinking prowess, taking into account others' feelings and level of understanding" and "Are concerned about others' welfare" (Ennis, 2011a, p. 15). Ennis' conception of care seems to suggest a sympathetic, if not also somewhat condescending, sensitivity toward the other who may be less socially privileged or cognitively capable. Granted, taking into consideration of "other's feelings and level of understanding" is certainly important in effective communication of one's critical thinking. However, to care the other—especially as "letting the Other be"—seems to suggest something quite different. The aim is not so much to be merely polite as to strive for greater justice and equality for and along with the other; it is also about recognizing the value of the myriad others that are different from oneself, and about being willing to the possibility of expanding oneself in light of the other.

[24] Ennis (1996) demonstrated similar misunderstanding of other dispositional components of critical thinking advocated by feminist philosophers: e.g., the idea of being more "deeply involved" with rather than "distancing oneself" from the subject in which one is examining or trying to gain better understanding, or taking into account one's inner voice as part of knowing and consideration for decision-making (p. 173-174). Ennis seems to interpret these suggestions in a simplified and exaggerating way. He cautioned against "deep involvement," for example, arguing it in a way that is probably not intended by its proponents—i.e., as a disposition that may lead to a biased or close-minded attitude that would inhibit one "be flexible enough to see things from the point of view of the other side" (p. 174). Alternatively, when admitting that this disposition may lead to something good—better understanding and insight, Ennis assumed that the disposition "take the total situation into account" he proposed already encompasses these "good features" (p. 174). Likewise, he also asserted that whatever may be good in the disposition for including one' inner voice overlaps with the dispositions already in his conception, such as "to be well-informed." In other words, Ennis seems to conflate the more cognitive-driven dispositions he proposed with the more interpersonal-driven dispositions advocated feminist philosophers.

While defending and continuing to advocate the rigor characterizes the conceptions of critical thinking from first wave—similar to Ennis, Paul (2011) was more outspoken of its narrowness and technicality: "Informal logic was not conceived as applicable to virtually all human contexts…. It was not the thinking of a comprehensive educational thinker writing for educational reformers. It was not the thinking of a comprehensive mind considering broad and comprehensive problems" (p. 4). He asserted that theorists of the first wave need to do more to recognize the important challenges of broadening concerns from the second wave. Yet in a similar manner, while recognizing the strengths of the second wave—i.e., its comprehensive concerns, Paul also did not spare the perceived shortcomings of the latter wave: "second wave work (lacking a shared intellectual tradition) is collectively far less integrated, less coherent, and often more 'superficial'" (p. 1). Although not stated directly, this "vague comprehensiveness as at the expense of depth and rigor" of the second wave, as perceived by Paul, seems to have contributed to a more general and perhaps serious problem with the promotion and usage of critical thinking:

> All too often the phrase 'critical thinking' is nothing more than a vague place-holder for any of a miscellany of changes and/or conceptions of change. All too often, the phrase is used so imprecisely that no one knows exactly what is being said nor how to assess its unclarified effect. (p. 1)

In response to the critiqued problems within both waves, Paul proposed that the solution would be "a commitment to transcend the predominant weakness of the first two waves" (p. 1)—i.e., third wave of critical thinking.

4. Contested Visions for the Future Direction of Critical Thinking

This section captures the central debates on critical thinking since the mid 1990s. The five subsections within explicate the different ways in which theorists perceived or categorized the large number of conceptions of critical thinking that had been proposed in the earlier decades of the movement. In most cases, such organizational effort was also to pave the ground upon which they advance a vision of their own on the direction that critical thinking should evolve in the future. As such, subsection 4 brings in a discussion on "critical pedagogy," even though it is not traditionally considered as part of the critical thinking literature. The tension is apparent between the arguably waning synergy around "critical thinking" as an educational ideal and the apparent growing interest in "critical pedagogy" as an educational necessity in our times. A closer examination of this tension may generate inspiration for a necessary reconceptualization of critical thinking in a rapidly diversifying and diverging world.

(1) A Third Wave? Vision for a "Comprehensive Theory of Logic"

The future development of the critical thinking movement or "the third wave" as envisioned by Paul meant a "deep integration" or ambitious synthesis of the strengths of the earlier waves—the rigor from the first and comprehensiveness from the second. Explicated in greater detail, this synthesis is essentially a broadened conception of logic that encompasses not only logic of different disciplines but also " 'logic' of everyday life"—i.e., logic of "human emotions," "human behavior," and "every dimension of human life in which thinking is the driving force" (p. 2).

Perhaps such effort is indeed as important as Paul asserted. However, it also begs the question of feasibility and desirability in translating everything into some form of "logic" and putting it together into "a comprehensive theory of 'logic'," [25] marked by "a clear set of intellectual standards" (p. 5). Leaving aside the conceptual issues of this project, it may also be argued that Paul's incorporation of the comprehensive concerns from in the second wave deviates from what the feminist and postmodernist theorists had in mind. As evidenced in Noddings' proposal, a strong critical thinking that is morally directed would be more inclusive of different forms of criticality, ranging from argumentations to expressions at "the level of their bodies." Therefore, theorists like Noddings might have questioned Paul's apparently fixed assumption of "rigor" and "the leading role of [logical or critical] thinking in the shaping of human feelings and behavior" (p. 5). They may likely to also point out that in spite of Paul's original espousal for "a more dialectical/dialogical approach" to critical thinking and now a revised vision for an all-encompassing theory of logic or critical thinking, it is still not clear "if he is willing to move critical thinking beyond argumentation" (Noddings, 2012, p. 103).

In addition, while Paul saw himself as the leader of the third way since the mid 1990s, other theorists may also question whether or not his vision constitutes a new wave. This is because the previous major approaches—advocating for formal or informal logic—stemmed from a philosophical tradition called "analytic philosophy" (Noddings, 2012, p. 85). Originated by Bertrand Russel, analytic philosophy had dominated the philosophical world and influenced

[25] Paul (2011) used the terms "logic," "thinking," or "critical thinking interchangeably, as he also referred to "a comprehensive theory of 'logic'" as "a comprehensive theory of thinking or critical thinking" (p. 5). This conflated use of the terms seems to suggest a view/ideal, perhaps somewhat common among informal logicians, that one should necessarily think logically, carefully, thoroughly across all domains; therefore, thinking or critical thinking at its best is 'logic' of one kind or another.

the intellectual approach of many other academic disciplines in English-speaking countries like the U.S. and the Britain. Analytic philosophy emphasizes neutrality and analysis. The job of an analytic philosopher then is to "try to clarify what is really there in a word, concept, or bit of writing" and "leave everything as it is," so to speak. Leaving aside the possibility of absolute neutrality or objectivity, an analytic philosopher would typically stay away from interpreting, critiquing, or changing the world (Noddings, 2012, p. 44).

Ennis' conception of critical thinking and his defense of it in light of feminist challenges clearly situate his work within the analytic tradition. By contrast, Paul's Socratic concerns for rooting out one's egocentric and sociocentric assumptions may put him outside of the analytic tradition. Yet his consistent project on "universal elements of reasoning" and rigorous logic—albeit one that somehow "accommodates the role of emotion, intuition, imagination, and values in thinking" (Ennis, 2011, p. 5)—is still one of informal logic. By contrast, Noddings[26] and other theorists came from the outside of the informal logic and analytic philosophy tradition—i.e., the myriad branches of continental philosophy and American Pragmatism.[27] They were proposing a different alternative or reconceptualization of critical thinking. Perhaps from their perspectives, either the third wave of critical thinking has not happened yet, or it would be theirs rather than Paul's logic-centered vision that constitutes the next wave of the critical thinking movement.

[26] Noddings was also a proponent of Deweyan philosophy of education; her work often aligns and draws upon thoughts not only from feminist/postmodern traditions but also from American pragmatism—i.e., Dewey's philosophy.

[27] According to Noddings (2012), the various branches of "continental philosophy" typically includes existentialism, phenomenology, critical theory, hermeneutics, and postmodernism. Within critical theory, there are different subbranches, such as feminism, critical race theory, and post-colonial criticism. Although common conceptions of critical thinking have largely been shaped by analytic philosophy/informal logic, theories and research in education as a whole have been significantly influenced by not only analytic philosophy but also continental philosophy and Dewey's pragmatism. It may be worth noting that Dewey did not consider himself a pragmatist, like many philosophers whose work and thoughts typically reach beyond the philosophical schools with which they are associated with—by the categorization of later scholars or writers.

(2) Varied Categorizations of the "Waves" or Conceptions within the Critical Thinking Movement

What can be seen here is also the different ways by which theorists organized the proposed conceptions and changes within the critical thinking movement, and by which they situate their own positions and contributions to its development. The "movement" can be understood along a contestable timeline, as delineated by Paul's three waves; it can also be grasped by the divergent undergirding philosophical traditions, as suggested by Noddings—i.e., analytic philosophy vs. continental philosophy (e.g., critical theory[28] /feminism and postmodernism). In the following we consider a third way of categorization by Gert Biesta and Geert Stams. Although concluding on a similar direction for critical thinking as Noddings, Biesta and Stams seemed to have offered a more generalized and flexible conceptual approach for understanding the varied theorizations on critical thinking.

In their article, Biesta & Stams (2001) offered three conceptions of critique or "criticality" that evidence different underlying perspectives on "what it is to be critical" or justifications "to what gives each of them the *right* to be critical" (p. 60). The authors were primarily concerned with the question of bias—i.e., "whether the idea(l) of critical thinking is a neutral, objective, universal and self-evident idea(l), or whether it is in some way *biased* (e.g., by culture, class or gender)" (p. 59). This question is of crucial importance to critical think theorists, because the

[28] "Critical theory" is also explained in Britannica as a "Marxist-inspired movement in social and political philosophy originally associated with the work of the Frankfurt School. Drawing particularly on the thought of Karl Marx and Sigmund Freud, critical theorists maintain that a primary goal of philosophy is to understand and to help overcome the social structures through which people are dominated and oppressed." Feminism may be seen as a branch of critical theory. [Citation: Britannica, T. Editors of Encyclopaedia (2019, August 22). *critical theory*. *Encyclopedia Britannica*. https://www.britannica.com/topic/critical-theory]

response to this challenge directly affect the legitimacy of practicing critical thinking and implementing it as a mass educational movement locally and globally. The three conceptions of critique or criticality[29] Biesta and Stams offered to address the question can also be used to understand, at a more fundamental level, the different rationales that uphold the various views and applications of critical thinking.

The first conception is "critical dogmatism," referring to a view of critique simply as "the application of a criterion in order to evaluate a specific state of affairs" (p. 60). Biesta and Stams argued that such operation of critique is critical in a very limited sense—i.e., insofar as it leads to evaluation, yet leaving the evaluative criterion itself out of the critical or reflective process. In other words, critical dogmatism "derives its right to be critical from the *truth* of the criterion" and takes for granted that "the uncritical acceptance of the critical criterion is inevitable" (p. 60). An example Biesta and Stams mentioned is the common practice of using a definition as the general criterion, e.g., "emancipation" in critical pedagogy, to evaluate the value of various educational theories and practices (p. 61).[30] In addition, an example of dogmatic practice from the critical thinking movement could be a rigid insistence or unreflective application of the critical thinking criteria and principles espoused and determined by the community of informal logicians, as sometimes evidenced in educational policy or quick-fix critical thinking courses. In other

[29] Biesta and Stams used the terms "critique" and "criticality" interchangeably, which contrasts with the more specific ways in which Davies and Barnett or Burbules and Berk used the term "criticality"—as in "the criticality movement" (see details in the next section).

[30] It may be noteworthy to also point out that in spite of the negative connotation that is often associated with "dogmatism," Biesta and Stam (2001) also asserted "there is nothing objectionable to this approach…*as long as one recognizes and accepts its dogmatic character*" (p. 61). In other words, while the authors found critical dogmatism to be conceptually unsatisfactory or inconsistent as a form of criticality, they also recognized its value, however limited it may be, in assessing educational research and practice.

words, critical dogmatism may appear in a wide range of different conceptions and applications of critical thinking, beyond the particular philosophical schools they are associated with.

By contrast, the other two conceptions of critique would address the justification question in a less dogmatic or uncritical way. For example, the second conception is called "transcendental critique," which was inspired by Kant's philosophy or "the *transcendental* track—where it became the proper task of philosophy to articulate the *condition of possibility* of true (scientific) knowledge" (p. 62). The authors' explanation in this section is particularly dense and abstract; from what I could gather, transcendental critique is "motivated by the principle of rationality" as an innate and thus universal condition of human reasoning and construction of knowledge (p. 64). From this view, critique or what it means to be critical entails examining the logical consistency within an argument that our rationality invariably demands, or as Biesta and Stams phrased it: "the confrontation of a position or argument with its often implicit conditions of possibility in order to reveal whether such a position or argument is rational or not" (p. 64-65). In other words, while transcendental critique takes a non-dogmatic view on providing a justification for the right to be critical—i.e., drawing upon the arguably innate human nature for reasoning and logical consistency, it is still similar to critical dogmatism in the sense that "it entails a totalizing style of critique" (p. 60).

The third conception of critique is called "deconstruction," adopted directly from Derrida's postmodern philosophy that aims to re-evaluate all Western values and to deconstruct, in particular, critical dogmatism around its ideal concepts—e.g., what it is to be just, what is considered true knowledge, what is entailed in critical thinking. At the same time, deconstruction can also be seen "first and foremost an *affirmation* of what is excluded and forgotten"—i.e. the

other (p. 67). From this perspective, critique consists "in revealing the impurity of the critical criteria…in revealing that they are not self-sufficient but need something other than themselves to be(come) possible." In other words, deconstruction espouses a kind of criticality that is more consistently critical or reflective than the other two approaches of critique. To be critical entails not only applying reasonable criteria for evaluation but also examining the "uncritical assumptions" within one's evaluative criteria. From this philosophical perspective, "critical thinking" would be seen as an inherently complex and unstable ideal concept embedded within a system of language and values that needs to be closely examined.

Referring back to the bias position about critical thinking as "an idea(l) concept," Biesta and Stams concluded that it would depend on how the underpinning question of critique or what it is to be critical is addressed. If the conception of critical thinking is based on critical dogmatism, then critical thinking as such would be biased, or "more appropriately to think of it as an *interested* position" (p. 70). If conceptions of critical thinking are grounded on transcendental critique, as many proposed by informal logicians arguably are, Biesta and Stams argued that they often demonstrate a narrow concern that is focused primarily on rationality or rational reasoning. Citing Harvey Siegel, a well-known figure in the critical thinking movement and "defender of the transcendental approach," the authors demonstrated the limiting attitude of transcendental critique towards broader social concerns: "the philosophical enterprise does not have as its goal to bringing about of social justice" (as cited in Biesta & Strams, 2001, p.70-71).

For rationality to be truly valuable, Biesta and Stams further asserted, it "should eventually stem from its contribution in furthering the case of justice" (p. 71). In conclusion, they proposed a direction for "a redescription of critical thinking that takes the lessons from

deconstruction into consideration" (p. 710). Critical thinking as such seems to converge with Nodding's alternative critical thinking that is "morally directed"— also inspired by Derrida's postmodern philosophy that espouses a thinking for fostering better human connection. Just as Noddings (2012) described of her proposed alternative as emergent or "not fully developed" (p. 85), Biesta and Stams also seemed to refer to this "redescription" as a worthy direction to be further explored. In addition, it may also be argued that even though Biesta and Stams' interpretation of the critical thinking movement and conclusion of its direction bears much similarity to Noddings, their more generalized conceptual approach—i.e., the three concepts of critique or criticality—offers a flexible way to interpret a wider range of critical thinking practices and applications that have been proposed or may yet to come.

(3) Varying Directions for Critical Thinking (in Higher Education)

Arguably, Davies and Barnett (2015) proposed yet a fourth way of organizing the various critical thinking conceptions and of considering its future direction, that differ considerably from the ones suggested by Biesta and Stams, Noddings, or Paul. In addition, Davies and Barnett also introduced a vision for the direction of critical thinking, which instead of calling it a re-description or re-theorization, they used a new term "criticality" or "the criticality movement."

In the introduction to their co-edited *Palgrave Handbook of Critical Thinking in Higher Education,* Davies and Barnett (2015) proposed yet another way of organizing the various conceptions of critical thinking, in an "overarching model" expressed in the form of an axis

diagram.[31] Using this diagram, they introduced newer conceptions or approaches to critical thinking, such as "criticality" and "critical pedagogy" that are not typically included or discussed extensively in the critical thinking literature. The following describes this model as a separate section, even though like the other ones described earlier, it is also a way of categorizing the different formulations of critical thinking. Davies and Barnett's model differs, however, in two important aspects: Its unusually broad scope of inclusion and its specific concern for the direction of critical thinking in higher education[32] in the current context of neoliberal globalization.

The diagram presented by Davies and Barnett demonstrates the broader scope of their concern of critical thinking in higher education. The diagram consists of two axes, where the X-axis represents "socio-cultural"[33] dimension, and the Y-axis "individual" dimension. Using the two axes, the authors were able to chart out different conceptions of critical thinking, for it may be argued that all conceptions contain both of these dimensions but with varying degrees of emphasis in each. In the diagram, Davies and Barnett grouped all the conceptions proposed within the box demarcated as "critical thinking movement" and placed them relatively high on the Y-axis or individual dimension axis and low on X-axis or social dimension. The two diagonal lines that cut across the box (or closest to the Y-axis) symbolize, in a rather crude way, the conceptions of critical thinking that emerged from the first and second wave of the movement.[34]

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[31] Due to copyright concerns, the dissertation does not include Davies & Barnett's (2105) diagram on p. 22; however, it is worth checking out for interested readers.

[32] Not that the other alternatives do not apply for higher education, but certain conceptions like critical pedagogy arguably make more sense in a higher education setting.

[33] It is not clear why they call it "socio-cultural" rather than "social" or "socio-political" (explicitly mentioned, p. 9 "a social and political dimension")—which would have seemed more apt of a description for the ideas they proposed.

[34] Davies and Barnett (2015) did not seem to capture the multitude of other voices, such as Noddings and Weinstein's, as discussed in a previous section of the literature review. In other words, they seemed to have skipped some important nuances and (postmodern/feminist) alternatives emerged from the second wave of the movement; what they did focus or present are conceptions proposed by informal logicians within the two waves. Arguably, this is not a fair characterization of the critical thinking movement, though the simplistic representation seemed to help

The first line titled “critical rationality” represents the first approach to critical thinking that focused on evaluation of argumentations and that perceived critical thinking as primarily rational/logical reasoning skills. The second line titled “critical character” stands for the latter expanded approach that included not only dispositions in addition to skills but also critical thinking in the strong sense as proposed by Paul—i.e., self-examination. Davies and Barnett argued that to practice critical thinking as such is to live an *examined life*, which would also mean that critical thinking “dispositions and skills have been incorporated as part of one’s deep-seated personality and moral sense—in short, one’s character” (p. 13).

The diagram also includes two other boxes, representing respectively the scope of the “criticality movement” and the “critical pedagogy movement.” According to the authors, “criticality” is an emergent term that is “deliberately distinct from the traditional expression ‘critical thinking,’ which was felt to be inadequate to convey the educational potential that lies to hand” (p. 14-15). Therefore, “criticality” can be seen as a more expansive conceptual replacement of the older concept “critical thinking” for the purpose of broadening the scope of concern; for Davis and Barnett, it means expanding from what it means to think critically to what it means to be a person in the world who thinks critically, i.e., “critical *being*.”

It may be important to note that the term “criticality” has been used differently by other educational theorists, e.g., to refer more generally to a quality of critiquing (Biesta & Stams, 2001) or to suggest a particular alternative for critical thinking (Burbules and Berk, 1999, which will be

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highlighting the characteristic difference of the “criticality movement” and “critical pedagogy movement” from the “critical thinking movement” in the diagram. It may be concluded that Davies and Barnett’s diagram is helpful in grasping overall critical trends in higher education and their differences and relations with one another; however, it is less reliable as a guide to understanding the richness and possibilities for further developing critical thinking (however it may be defined) in higher education.

discussed in greater detail in a later section). The concept as used by Davis and Barnett entails a composite of "critical thinking [i.e., in the traditional sense, focused on argumentation, judgment, skills and corresponding dispositions], critical reflection [i.e., self-reflection or examination], and critical action" (p. 16).

There are visible overlaps between the critical thinking movement and the criticality movement. For example, notice that the second diagonal line in the former movement—i.e., "critical character"—also cuts across the latter movement. It means that this particular conception of critical thinking is shared by both, albeit with some differences. For example, in the criticality movement, it seems that "critical character" would entail not just critical *thinking/reflecting* but also critical *being* that may lead to critical *acting*. In practice, in means that if higher education adopts the criticality or "critical character" approach, the following changes could happen, according to Davies and Barnett:

> Higher education can, therefore, potentially do much more than teach students how to demonstrate (for example) critical thinking as analytic skills and judgments. It can also prompt students to understand themselves, to have a critical orientation to the world, and to demonstrate an active sociopolitical stance toward established norms or practices with which they are confronted. This, it is argued, is more than what is offered by the critical thinking movement in relation to skills in critical thinking; it is tantamount to the developing of critical *being*. (p. 16)

It other words, while "critical character" may mean examining one's assumptions and biases in the critical thinking movement, it could mean something broader and socio-political in the criticality movement—i.e., moving beyond critical reflection of oneself to a being that "participat[es] in society as a critically engaged citizen in the world" (p. 16).

The example of critical action mentioned by the authors was none other than the famous photograph from the 1989 Tiananmen Square protests or Democracy Movement in China, where

a student stood in front of a line of tanks that were coming to clamp down on the protesters. From the authors' perspective, the student's daring political defiance constitutes "critical thinking as 'criticality' [i.e., critical action]" and highlights "a *moral* and *ethical* dimension to critical thinking" that is often missed in its traditional conceptions (p. 16). This example reifies the "active sociopolitical stance toward established norms and practices" the authors perceived as a part of the larger goal for fostering criticality in higher education. It also explains the relative emphasis on the individual/rational reasoning skills dimension and the socio-political/activist dimension of the criticality movement, in contrast to the variant levels of emphasis in each dimension in the critical thinking movement and the critical pedagogy movement—as perceived by Davies and Barnett.

In the diagram, the two inner diagonal lines (suggesting stronger individual orientation on the Y-axis) within the box titled "the criticality movement" are shared with the critical thinking movement; by contrast, the three outer diagonal lines—i.e., "critical action," "critical virtue," "critical consciousness" (reflecting stronger sociopolitical orientation on the X-axis)—are shared with the critical pedagogy movement. Arguably, there are some inconsistencies in the way Davis and Barnett described the relationship between the critical thinking and the criticality movement. On the one hand, the authors described their endeavor as "a modest step in the direction of third-wave theorizing" (p.8) or part of the third wave identified by Paul;[35] on the

[35] It is not clear whether Davies and Barnett had truly grasped Paul's vision for the third wave as "a comprehensive theory of logic that clarify the leading role of reasoning." This is because Davies and Barnett seemed to have highlighted partial aspects of Paul's description on the proposed third wave, such as a comprehensive incorporation of considerations of emotion, intuition, etc. into the concept of critical thinking. They did not include in their description what may be argued as Paul's work or third wave is his ultimate interest in forging a third wave of critical thinking, as generalizable skill, and the leading role of reasoning.

other hand, the diagram demonstrates the criticality approach or movement as an overlapping, all-encompassing, but distinctive movement that attempts to reach a middle ground or bridge the other two divergent and disconnected movements—critical thinking and critical pedagogy.

(4) Critical Pedagogy

Although Davies and Barnet explicitly espoused the criticality model as their preferred approach for higher education, they nevertheless included "critical pedagogy" in their diagram. This is because these two latter movements share the view that it is not insufficient to just foster students' critical reasoning skills and dispositions and to be "very much concerned with the individual"(p. 19), as evidenced in the critical thinking movement. Rather, higher education needs to do more to also cultivate critical doing—action or participation in the socio-cultural or socio-political dimension. The major difference between these two latter movements, according to Davis and Barnett, lies in the concern for "*social institutions* (and society more broadly)—not merely individuals' action—to be a vital factor for critical thinking" (p. 19). In other words, while both movements see "action as an intrinsic, not separable aspect of criticality," critical pedagogy "takes critical action much further" (p. 20).

Critical pedagogy is an educational movement, particularly in higher education, that aims to help students "overcome and unlearn the social conditions that restrict and limit human freedom" (p. 18). Paulo Freire, Peter McLaren, and Henry Giroux are some of its key theorists. Critical pedagogists are primarily concerned with "society, its conditions of social oppression (as it advocates perceive them), its ideologies, and its fundamental inequities;" therefore, they commonly perceive "changing society as much as if not more than individual students" (p. 9). In

addition, critical pedagogists demonstrate a different view of how assertions or knowledge claims should be analyzed, as Davies and Barnett described in the following:

> They regard truth claims, for example, "not merely as propositions to be assessed for their truth content, but as part of systems of belief and action that have aggregate effects within the power structures of society. It asks first about these systems of belief and action, *who benefits*?" (italic in the original, Burbules and Berk 1999, 47). Their focus is on the social and political *functioning* of arguments and reasoning and their wider frames of thought. Questioning power relationships in society that lie behind forms of thought must, they argue, be considered a central part of critical thinking (Kaplan, 1991) (p. 9).

Therefore, the primary task of critical thinking would be to critique socio-political institutions, ideologies, and discourses that instigate or reinforce injustices, inequality, and oppression.

As critical thinking is perceived to be "at the service of transforming undemocratic societies and inequitable power structures," education that fosters critical thinking (in the critical pedagogical way) would aim "not simply educating for critical thinking or even enabling individuals to embody a critical spirit, but educat[ing] for *radical* transformation in society as well"(p. 19). High education, in particular, would serve as "a vehicle for combating perniciousness… inherent in capitalist society"(p. 20). As Burbules and Berk (1999) explained it:

> Critical pedagogy would never find it sufficient to reform the habits of thought of thinkers, however effectively, without challenging and transforming the institutions, ideologies, and relations that engender distorted, oppressed thinking in the first place—not an additional act beyond the pedagogical one, but an inseparable part of it (p. 52).

In other words, education directed by critical pedagogy would direct its students to become not only critically-minded thinkers but also sociopolitical activists. This vision of education contrasts sharply from that advocated in the critical thinking movement, where the primary concern may be described as the cultivation of individuals who have certain habits of mind or dispositions and skills that would lead to good judgments—whether it may be about certain knowledge-claims or arguments, professional decisions, the self or the other.

Even though Davies and Barnett did not explicitly advocate critical pedagogy as the primary direction for critical thinking that higher education should take, they made a persuasive point about why critical pedagogy has become such a compelling and much-needed force in higher education today. This is because the critical pedagogy movement seems to provide more potent responses than the traditional critical thinking movement to the important questions that need to be asked: What does it mean to be critical in the current context of intensified marketization and aggravating socioeconomic inequalities locally and globally? And what role can higher education play in fostering a kind of criticality that is more appropriate and effective for addressing the urgent concerns in the global age? Given the gravity of the contemporary sociopolitical and economic situations under neoliberalism and the responsibility of higher education in such times, it may seem quite impossible to not include critical pedagogy or some aspects of it for any educational theorists who are concerned with the cultivation of critical thinking and spirit in higher education.

Yet as Davies and Barnett also pointed out, critical thinking theorists do not commonly agree with the approach of critical pedagogy but often perceive it as "a misguided stance" (p. 20). The tension between the two groups or views on what it means to be critical has been apparent and intense since the beginning. Key critical theorists have occasionally acknowledged critical pedagogy in passing (Ennis, 2011a; Paul, 2011; Hitchcock, 2018) as a voice among many that had emerged during the second wave and critiqued the traditional/skill-centered

conceptions of critical thinking. Such acknowledgement, however, tend to be perfunctory, if not also negational—i.e., critical pedagogy is not typically considered as a part of critical thinking.[36]

Indeed, critical thinking proponents have charged critical pedagogy with teaching students to think politically rather than critically. Students may, as a result, take for granted certain formulated ideas or conclusions that "society is inequitable, that society *is* ideologically saturated and so on, and that society *is* characterized by undue repression…[which] is itself equivalent to indoctrination" (Davies & Barnett, 2015, p. 20). In defense, critical pedagogists have responded that the distinction proposed by critical thinking theorists between thinking critically vs. politically is itself false. This is because critical pedagogists believe strongly that "raising the issue of social conditions of freedom is *essential* to critical thinking. True critical thinking, for the critical pedagogists, involves liberation from an oppressive system as a condition of freedom of thought" (Davies & Barnett, 2015, p. 21). As individual freedom from falsehood and imposition are arguably shared goals between the two contending movements, critical pedagogists would further assert that without social emancipation or recognition of one's true social condition, one would not be able to think truly critically and reach the intended goals of "cognitive, discursive, personal, or even societal freedom" (Davies & Barnett, 2015, p. 23).

Granted that some level of pedagogical "indoctrination" may seem inevitable or necessary for helping students to recognize false consciousness at the individual and collective level before a more genuine process of critical thinking can take place. Perhaps the initial

[36] In addition, it may be of interest to note that while they (critical thinking theorists) often address specific challenges raised by postmodern and feminist theorists, or even try to expand their conceptions based the challenges, the same thing did not happen with critical pedagogy. This suggests that perhaps the gap between the two approaches may be irreducible wide.

experience of indoctrination may somehow be balanced and casted off later as students also presumably grow into mature, critical thinkers. Yet as Noddings (2012) described in the following, habits of mind run much deeper, and the ideals and approach proposed by critical pedagogists do not often yield the intended results of social and/or personal emancipation:

> If the oppressed learn to read and listen critically, they may shed their false consciousness and see their true condition. When that happens, they may act to overthrow their oppressors or, at least, to press somehow for a change in their conditions. But often—and this has caused a great sadness for Paulo Freire and others working to overcome oppression—the newly liberated turn right around and behave like the former oppressors. Critical thinking serves a morally admirable purpose in the first stage and an ignoble one in a later stage, or, as advocates of critical thinking might argue, it is simply abandoned in the later stage. (p. 101-102)[37]

As Noddings' description suggests, there are substantial challenges within critical pedagogy that need to addressed—i.e., not only conceptual and pedagogical issues but also (even as a consequence) moral challenges at the praxis level. Perhaps in spite of the schism, the limitations of both the critical thinking movement and the critical pedagogy movement may be benefited by a more active consideration of the other—the strengths that the other possess that may become part of one's own.

[37] In light of Noddings' challenge to critical pedagogy, it may be argued that consciousness-raising would not be enough, for there are deep-rooted habits of mind or psychological factors that are perhaps somewhat innate fallibilities shared among people, oppressed or oppressor alike. And unless these matters are dealt with in a vigilant way, it would be hard to change the cycle of oppression but merely change the figures of oppressors. Moreover, the oppressed vs. oppressor binary may be argued as a sociological way of categorizing people in terms of sociopolitical power and hierarchy. In a perhaps overly simplified way, critical pedagogy does seem to take into account how relationships and identities of the "oppressed" and the "oppressor" may be quite fluid, shifting in different contexts or domains. For example, the same oppressed (at work, in the socio-political domain) may be oppressor (e.g. as typically the husband at home, in the personal domain), or vice versa the oppressor (at work) may be oppressed (e.g. the capitalist son at home, in front of an even more oppressive and controlling father or mother).

(5) Going Beyond Critical Thinking and Critical Pedagogy?

In many ways, all the critical thinking theorists discussed thus far have recognized the benefit, if not also the imperative, of synthesizing the varied understanding and concerns of critical thinking into a more inclusive, stronger conception. They may differ in the ways their visions are named or placed in relation to the different movements, whether it be called a re-description or re-theorization of the original concept within the critical thinking movement or referred to by a new term "criticality" or "the criticality movement." However divergent these visions might be for the future direction(s) that critical thinking should take, all point to significant improvements that need to occur—i.e., in terms of form, constitutive components, and purpose—in its future development, so that its transformative potential can be realized for better responding to the central concerns of our times.

Three distinctive yet somewhat overlapping visions have been proposed about the future direction(s) of critical thinking. First, a "third wave" of the critical thinking movement envisioned by Paul (2011),[38] which would amount to an expansive theory of critical thinking that combines the intellectual/logic rigor of the first wave with the broader social and psychological concerns of the second wave. A synthesis of the two waves, from Paul's view, would essentially entail "a comprehensive concept of logic which accommodates the role of emotion, intuition, imagination, and values in thinking" (p. 5). In other words, logical or rigorous thinking—defined by prescribed

[38] Even though the online article in which Paul mentioned the "third wave" is cited by other scholars (e.g. Davies and Barnett, 2015) as a 2011 publication, the same article can still be downloaded from Paul's Center for Critical Thinking (www.criticalthinking.org) today (2021). Although the exact date of the publication is not specified, its content and title—"The Critical Thinking Movement: 1970-1997: Putting the 1997 Conference into Historical Perspective"—seem to suggest that it was written sometime around 1997 or shortly after.

criteria and principles yet now made to be more cognizant of other humanly components—would still take "the leading role" in organizing all human affairs.

This vision of critical thinking as informal logic of some type will continue to develop and sustain a strong holding by attracting educational theorists of analytic philosophy and logic background. Even though informal logic as "the foundational discipline" for conceptualizing critical thinking may not hold has much dominance today as it once did in the 80s and early 90s, the association between critical thinking and informal logic may remain deeply entrenched and compelling. Ennis, for example, continues to be a strong proponent of the informal logic approach to critical thinking. According to his account, the Association for Informal Logic and Critical Thinking (AILACT) has been "the only professional association focused on critical thinking," and it "must grow and make more information and guidance available to others" (Ennis, 2011b, p. 17)—i.e., by means of its publications, website, presence at major educational and philosophical conferences, etc. Under the influence of Ennis or Paul and their respective organizations, a substantial proportion of future educational theorists and practitioners may continue to teach critical thinking as largely logical and analytical skills, as how critical thinking is typically being perceived and taught today.

Second, an alternative approach to critical thinking, grounded on feminist, postmodern and (neo)pragmatist philosophy, was recommended by Noddings and by Biesta and Stams. While these theorists seem to see their endeavors to be situated within the critical thinking movement, their visions re-described critical thinking in ways that differed substantially from the direction proposed by informal logicians, such as Paul's "third wave." That is, whereas Paul may not be "willing to move critical thinking beyond argumentation" (Noddings, 2012, p. 103), Noddings,

Biesta and Stams were all basically arguing that "if rationality [as manifested in the form of argumentation] is to have any value at all—and we do in no way want to deny that it might be valuable—this value should eventually stem from its contribution in furthering the case of justice" (Biesta & Stams, 2001, p. 71). In other words, in their visions, critical thinking should not be practiced in a totalizing style, i.e., insisting its existing criteria as ideal, transcendent, or universal and expecting the divergent others to assimilate and abandon themselves. Rather, critical thinkers "must continuously be vigilant for uncritical 'remainders' (Biesta & Stams, 2001, p. 60), remain open to the other, and be ready to move beyond argumentation, should the purpose of connecting with the other or "letting the Other be"[39] call for different forms of understanding and communication.

Drawing upon the works of other feminist philosophers, Noddings further asserted that critical thinking could be "turned from its largely negative role to a more generous and positive one"—i.e., one that is constructive and useful for "interpersonal reasoning" and for understanding "ourselves better"(p. 243). By contrast to Paul's earlier proposal of strong critical thinking that emphasized eliminating or separating oneself from one's assumptions and biases, feminist theorists advocated a "more appreciative acceptance of subjectivity and the richness it contributes to critical thinking" (p. 242). They argued that by better accepting and understanding ourselves, we may "increase motivation to understand others;" vice versa, "as we engage in

[39] It may be of interest to explicate what Derrida meant by "letting the Other be": According to Noddings (2012), It "does not imply mere coexistence. It does not mean neglecting the other or abstaining from any intervention or attempt to persuade. Similarly, confirmation does not imply making excuses for the other or pretending that an ill-motivated act was done with good intentions…. As we intervene, as we attempt to persuade, we help the other do better *as other*, not as a mere shadow of ourselves. Similarly, when we see evil in other, we withhold judgment long enough to be sure that the evil is in the other and not a project of evil in ourselves" (p. 242).

caring forms of interpersonal reasoning, we should gain a deeper understanding of ourselves" (p. 243).

It may be thus summarized that a reconceptualized critical thinking endorsed by feminist and postmodern thinkers would likely to emphasize "coexploration [that] can lead to mutual transformation" (p. 241) and "receptivity of caring that is directed not only outward but inward as well" (p. 242). Such mutually benefiting emphasis would expand the interpersonal and intrapersonal dimensions of critical thinking, highlighting its function in moral development and in bringing about justice to who we are, how we relate to one another, and what we consider as legitimate knowledge and approach to problem-solving.

Third, a new term "criticality," or the "criticality movement" as Davies and Barnett called it alternatively, highlighting a somewhat distinctive direction for the future development of critical thinking in higher education. Given Davies and Barnett's conception of criticality as a composite of three components—i.e., critical thinking, critical reflection, and critical action—perhaps the most salient difference between "criticality" and "critical thinking" (e.g. Paul's commonly recognized conception of strong critical thinking that includes critical reflection) lies in the ways in which "critical action" is interpreted. Whereas critical thinking theorists like Ennis and Paul would typically consider the practice of critical thinking skills or dialectic/dialogic communication constitutes a form of "critical action," Davie and Barnett referred it by a specific type—sociopolitical participation and/or activism.

If the criticality movement differs indeed, as Davies and Barnett described, from the critical pedagogy movement (which "takes critical action much further"), then their conception of "criticality" may not differ substantially with the alternative proposed by Noddings and by

Biesta and Stams. Both sides emphasize the "*moral* and *ethical* dimension of critical thinking" arguably lacking in the earlier conceptions proposed by informal logicians. Yet given the example Davies and Barnett presented—i.e., the student from the Tiananmen Square Massacre, it does not seem that the extent of sociopolitical actions they had in mind diverge significantly from critical pedagogy. Both demonstrated interest or belief in education as a vehicle or site for activating students to challenge, resist, and confront the "established norms and practices" that are perceived to be oppressive—with the exception that critical pedagogy seems to have a more developed and specific theory of how to view the world and put its ideology into praxis. Perhaps the tension and ambiguity within the criticality movement as envisioned by Davies and Barnett is already expressed in the diagram. That is, as an overlapping middle position that draws upon both critical thinking and critical pedagogy, without perhaps the dogmatic commitment to neither as demonstrated by its firm adherents.

It may be important to note that other educational theorists have used the term "criticality" to also indicate an effort beyond the critical thinking and the critical pedagogy movement but with a different twist on how criticality should differ from either movements. For example, in a noteworthy paper, Nicholas Burbules and Rupert Berk (1999) proposed two related aspects that are arguably lacking in the two earlier movements.

First aspect is "the ability to think outside a framework of conventional understandings; it means to think anew, *to think differently*. This view of criticality goes far beyond the preoccupation with not being deceived [as highlighted in both the critical thinking and critical pedagogy movements]" (p. 12). This aspect of being open to think differently is emphasized because of the arguably "inability or unwillingness to move beyond or question conventional

understandings"—established within either movement. For the critical thinking movement, it would be the insistence on logical and analytical skills, along with their correlating dispositions, as the defining elements of critical thinking. For the critical pedagogy movement, it was the "latent" assumption conveyed in Freire's emphasis on "decodification":

> Learning to 'decode' means to find the actual, hidden meaning of things. It is a revealing choice of words, as opposed to, say, 'interpretation,' which also suggests finding a meaning, but which could also mean *creating* a meaning, or seeking out several alternative meanings. This latter view could not assume that 'critical' literacy and dialogue would necessarily converge on any single understanding of the world. Yet it is a crucial aspect of Critical Pedagogy that dialogue does converge upon a set of understanding tied to a capacity to act toward social change—and social change of a particular type. Multiple, unreconciled interpretations, by contrast, might yield *other* sort of benefits—those of fecundity and variety over those of solidarity. (p. 12-13)

Drawing upon postmodernists such as Derrida and Judith Butler, Burbules and Berk also advocated another aspect "at a still deeper level… the ability to question and doubt even our own presuppositions—the ones without which we literally do not know how to think and act" (p. 13-14). They asserted that this seemingly debilitating or "paradoxical sort of questioning is often part of the *process* by which radically new thinking begins… by imagining what it might mean to think without some of the very things that make our (current) thinking meaningful" (p. 14). And both aspects—i.e., the ability to think differently and to question without attachment to certainty of content or structure—entail an openness and interpersonal capacity to engage in "conversations with others, especially others not like us" and "social conditions in which such conversations can occur (conditions of plurality, tolerance, and respect)" (p. 13). Therefore, maintaining an optimal social conditions that encourage conversations with the diverse other becomes another crucial component in the development of critical thinking or criticality.

Even though criticality as Burbules and Berk advocated may lack an explicit emphasis on a moral anchor in the way that Noddings and Biesta and Stams highlighted, their versions seem to overlap substantially more than either with Davies and Barnett. This is because Davies and Barnett's vision seems to give more emphasis on strong moral/sociopolitical actions and less emphasis on radical reflection and openness to examine oneself in light of the other. Whether it be called a reconceptualized critical thinking or criticality, Burbules and Berk, Noddings, and Biesta and Stams all point to a kind of thinking that does not insist on an epistemological anchor or fixed criteria of thinking or interpretation of the world. Rather, it is an interactive/co-explorative thinking that "regards one's view as perpetually open to challenge, as choices entailing a responsibility toward the effects of one's arguments on others" (p. 13).

In short, in spite of the differences among the proposed directions of how critical thinking should continue to evolve, they converge on describing or demonstrating critical thinking as a malleable concept with much more to be done in developing and improving it further (whether under a different name or not). The diagram below provides a rough or partial summary of the different visions of how critical thinking should continue to evolve, as discussed above. The two vertical side arrows running in opposite directions indicate the extent to which each vision emphasizes the logic and moral dimensions of critical thinking. The order or relationship between the three visions (as in the three colored boxes) represents my interpretation of them; it may not necessarily demonstrate what the authors had in mind.[40]

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[40] For example, Davies and Barnett saw their endeavor or "criticality" as a small step within the "third wave" led by Paul; however, the crucial marker or component of their "criticality movement" is "critical action," which aligns much closer to critical pedagogy than Paul's "third wave"—construction of a comprehensive theory of logic.

Likewise, Burbules and Berk may not necessarily see their vision (proposed in the late 90s) aligned with those offered by contemporary feminist or postmodern theorists, as they stated: "Critical Thinking and Critical Pedagogy, and their feminist, multiculturalist, and postmodern critics, apprehend parts of this conception of criticality" (p. 14).

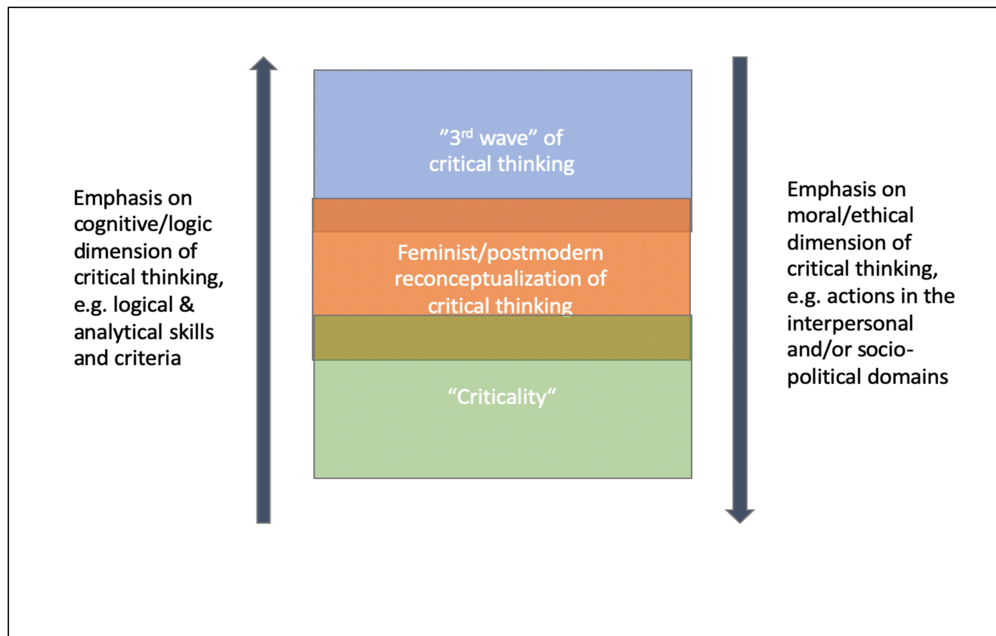

Figure 1. Possible directions for future critical thinking movement in the U.S.

5. Summary

It may be said that in spite of the differences highlighted in the diagram, key theorists discussed above may agree on a number of things about critical thinking that have been advocated by one another. As Noddings (2012) summarized: "definitions of critical thinking have tended to converge toward an emphasis on reasonableness, reflection, skepticism, and commitment to use one's capacities for reason and reflection" (p. 99). Whether they prioritize

They advocated a kind of criticality that emerges from "the unreconciled tensions among" different conceptions of critical thinking and that does not seek "to dissipate them" but to remain "open to such challenges" (p. 14); it would be a kind of criticality that gives rise to "fecundity and variety" or a prescribed purpose or criteria. While this vision of criticality certainly differs from the moral anchor or emphasis highlighted in the alternative proposed by Noddings (2012), it may also be argued that more similarities than differences may be seen among the versions proposed by Burbules and Berk, Noddings, and Biesta and Stams. They all draw upon postmodern philosophers like Derrida as an inspiration for their visions of critical thinking or criticality—i.e., as something that remains open to the other and change within oneself.

the cognitive/logic dimension or the value/moral dimension, they commonly recognize the benefit in acquiring critical thinking skills and the value connection between critical thinking and the quality of "our personal vocational, and civic lives" in a democracy (Ennis, 2011a, p. 5). They differ, however, in seeing the extent of such benefit from logical and analytical skills for applications across different domains (i.e., beyond the academic domain) and the extent in which values/moral virtues (e.g. caring about the other) should constitute an essential or associate aspect of critical thinking.

In light of the dissertation's interest in examining the experiences of learning critical thinking, the follow table (on the next page) collects and consolidates the various key components that have been proposed by different theorists about what it means to think critically and/or to foster critical thinking. It needs to be acknowledged that given the extensive works that have been published on this subject and the different terminologies theorists have used to refer sometimes to the same or overlapping components and their subparts, the table below aims to focus on elements that they generally agree on and/or are key to their proposed visions. The color gradations from white to lighter green and darker green demonstrates the increasing level of atypicality or controversy of a particular critical thinking ability or disposition. In creating the table, I drew largely from Ennis's publications and Hitchcock's article, because while the former provided the most detailed account of the critical thinking abilities and dispositions, the latter presented a comprehensive overview of critical thinking as described by various key theorists.

Ultimately, the table is created to provide a handy tool for considering and/or comparing the perspectives and reflections about critical thinking that we shall later explore from the

transnational Chinese undergraduates in this dissertation research. A more detailed or annotated version of the table below can be found in the Appendix section (Appendix 2), for readers who are interested in the finer points pertaining to the theorization of critical thinking.

CT COMPONENTS	ELEMENTS WITHIN EACH COMPONENT
1. Abilities/Skills *Drawn largely from Ennis (2011a) and Hitchcock (2018)	(1) Logical/Inferential abilities: Induction & Deduction
	(2) Analytic abilities: Argument analysis & evaluation
	(3) Questioning abilities: Clarifications & Assumptions
	(4) Consulting abilities: Credible information and observations gathering
	(5) Deciding/(value) judging abilities: Warranted decision/judgment
	(6) Suppositional/Imaginative abilities: Alternatives & Hypotheses
	(7) Emotional abilities: Sensitivities to puzzling problems, context, and the other in communication [Ennis, Lipman, Hitchcock]
	(8) Metacognitive/Self-correcting abilities: Aware the order and quality of one's thinking & be able to keep improving the thinking process [Ennis, Lipman]
	(9) Rhetorical abilities: Persuasive strategies [Ennis]
	(10) Observational abilities: Observation via senses or instruments [Hitchcock]
	(11) Experimenting abilities: (In)formal research/experiment [Hitchcock]
2. Dispositions (also known as tendencies, inclinations, habits, or spirit) *Drawn largely from Ennis (2011a, 2015) and Hitchcock (2018)	(1) Open-mindedness (to alternatives)
	(2) Truth-seeking
	(3) Willingness to suspend judgment/doubt
	(4) Willingness to trust/act on reason (when evidence or reasons are sufficient)
	(5) Intellectual virtues: courage, honesty, and persistence
	(6) Fairmindedness/impartiality to evidence
	(7) Habit/love on inquiry, inquisitiveness
	(8) Awareness/consideration of context
	(9) Systematicity (e.g., organized, orderly, focused inquiry) [Ennis, Facione]
	(10) Attentiveness/sensitivity (to problems for more thinking) [Facione, Lipman]
	(11) Reflectiveness (e.g., self-examining/correcting) [Lipman, Noddings, Paul]
	(12) Care, involvedness, inner voice [feminist critique: Belenky, Noddings]
	(13) Self-confidence [Facione; psychological factor]
3. Knowledge	(1) Content knowledge: subject-matter/background knowledge
	(2) Operational knowledge: critical thinking concepts & principles, the *how to*
	(3) Situational/personal knowledge: of a particular situation/context/person
4. Purposes (pertaining to education)	(1) (Cognitive-orientation) Better argumentations, careful thinking
	(2) (Intrapersonal-orientation) Self-knowledge, examining assumptions/biases
	(3) (Interpersonal orientation) "Letting the Other be," justice and democracy broadly defined as respect, co-exploration/-transformation, associated living
	(4) (Socio-political orientation) Critical actions/participations, social justice

Table 1. Key components in the concept "critical thinking" in the literature.

(Part B) Critical Thinking & Selfhood: An Alternative Literature Review

Much of the above literature review (I) tracks central debates typically covered in existing literature on critical thinking, focusing on what is being said by philosophers or theorists within the critical thinking movement, from the 1970s to the early 2000s.[41] Literature review (II) takes a broader approach, by considering literature and research vis-à-vis critical thinking from multiple perspectives and different times. The review consists of the following three main sections, each presenting a perspective from a particular time period: (1) the philosophical origins before the critical thinking movement, as demonstrated in the works of Socrates and Dewey; (2) research in educational psychology on epistemological development that was developing parallel to the critical thinking movement (i.e., dominated by philosophers); (3) the socio-economic/neoliberal global perspective that came to the fore largely at the end of the critical thinking movement in the late 1990s or early 2000s.

This alternative review highlights the innately transformative potential of critical thinking, the need for a more holistic approach to its pedagogy, and the underlying socio-economic force that is both popularizing and possibly submerging it. This more complex view of critical thinking does not contradict the previous conceptions of critical thinking discussed in the earlier literature review; rather, it illuminates the gravity and urgency to revitalize and reconceptualize critical thinking, particularly for the benefit of the individual and society, in the current context of neoliberal globalization.

1. Philosophical Roots

Literature on critical thinking often trace its roots back to Socrates and/or Dewey (Biesta, 2001; Ennis, 2015; Fisher, 2001; Kurfiss, 1988; Noddings, 2012). However, little discussion, if at all, is generally presented on how their philosophies had influenced the more recent conceptions of critical thinking. The following pages explore Socrates and Dewey's work to better understand the nature and use of this thinking as they conceived it. Seen from their perspectives, critical thinking may be substantially different and more powerful than how it has been typically conceptualized in contemporary debates (i.e., in the critical thinking movement). It may be argued that critical thinking in its original forms entails a much more personally engaged

[41] While it is possible to argue that "the critical thinking movement" is still ongoing, it is quite clear that the bulk of the publications and central debates took place in the 1980s and 1990s. Even though some of the literatures cited in the previous literature review were published in the early 2010's, they were published by key advocates who have generally retired from their official posts at the universities, such as Ennis and Noddings. In other words, the height of philosophical research and debates on critical thinking or the critical thinking movement (within the U.S.) seem to decline in the 2000s, even though the concept "critical thinking" itself continued to become more popular and entrenched in American education and elsewhere around the world since then.

reasoning process that potentially transforms not only knowledge but also the self or the knower and, by extension, society.

(1) The Socratic Origin

Socrates (470/469--399BC) was Plato's teacher; through Plato's work, particularly the early pieces known as the Socratic dialogues, Socrates' method of examination or *elenchus* arguably marked the beginning of Western philosophy as "a critical enterprise" (Biesta, 2001, p. 57). The Socratic elenchus typically begins with a deceptively simple question of definition--"what is X?" Here, X refers to a key moral or epistemological concept (e.g., justice, truth, piety, or knowledge) that is fundamental to the operation of everyday life and the legitimacy of social, political, and religious institutions. According to Vlastos (1994), Socrates' elenchus often takes the following steps:[42]

> (1) The interlocutor asserts a thesis, *p*, which Socrates considers false and targets for refutation.
> (2) Socrates secures agreement to further premises, say *q* and *r* (each of which may stand for a conjunction of propositions). The agreement is *ad hoc*: Socrates argues from {*q, r*}, not to them.
> (3) Socrates then argues, and the interlocutors agrees, that *q & r* entail not-*p.*
> (4) Socrates then claims that he has shown that not-*p* is true, *p* false.[43]

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[42] In a concrete example adopted from Wikipedia (2021) citing Vlastos (1983), the elenctic steps may be demonstrated in the following way: (1) The interlocutor asserts a thesis or definition that "courage is endurance of the soul," and Socrates decides the thesis is false and needs to be refuted; (2) Socrates secures his interlocutor's agreement to further premises, e.g., "courage is a fine thing" and "ignorant endurance is not a fine thing"; (3) Socrates then argues, and the interlocutor agrees, that these further premises would entail the contrary of the original thesis, i.e., "courage is not endurance of the soul"; (4) Socrates then claims he has shown that the original thesis is false and its negation is true. As a result of this elenctic examination, the interlocutor may propose a narrower or more refined definition. In the Socratic dialogue *Laches*, the interlocutor provided a revision that "courage is *wise* endurance of the soul," which was further examined through another round of elenchus and eventually refuted.

[43] It has been argued by other scholars, such as Frede (1992) that "Vlastos' conclusion in step #5 [or step (4) in the quotation cited from Vlastos (1994)] above makes nonsense of the aporetic nature of the early dialogues. Having shown a proposed thesis is false is insufficient to conclude some other competing thesis must be true. Rather, the

Through the steps above or a process of relentless questioning and probing into answers provided by his interlocutors, Socrates pushed them to think deeper about what they claim to know and to propose a more refined position or claim. Yet in most cases, the Socratic elenchus would end in an inconclusive or unsatisfactory manner, leaving its interlocutors in a state of *aporia* or puzzlement.

Although Socrates' purported intention is to seek out truth or knowledge from those who claim to possess them, as he has famously professed his own ignorance prior, the inquiries often conclude with the uncovering of logical contradictions, unexamined opinions, and self-aggrandizing hubris embedded in the interlocutors' responses. It may thus be argued that on the way to finding conceptual truth (e.g., definition of a concept), the Socratic method leads, foremost, to a kind of self-knowledge—i.e., knowledge of one's own ignorance about the many things one has yet to examine and understand. Therefore, the Socratic method may be seen as a way into knowledge not only about concepts but also about the self. That is, without awareness of one's deep seated yet unexamined beliefs, biases, and assumptions from within, genuine/examined understanding of the world or knowledge would not be possible. As Socrates stated in *Apology*, such self-knowledge or awareness of one's ignorance marks the necessary beginning for philosophical inquiry or possession of wisdom.

Unfortunately, the method was not well received by Socrates' interlocutors, many of whom were venerated public figures of the powerful yet crumbling Athenian state. The unsettling and even embarrassing consequences of the dialogues, often taking place in the public,

interlocutors have reached aporia, an improved state of still not knowing what to say about the subject under discussion" (Wikipedia, 2021).

wounded these figures' pride and provoked their animosities toward this "gadfly." Socrates was later charged on accounts of impiety—in believing in gods not sponsored by the Athenian state—and of corruption—in giving the youth a method of thinking or questioning that enabled them to challenge established beliefs or "disrespect" authorities. Not yielding to the accusations in order to avoid the death penalty, Socrates said famously that "the unexamined life is not worth living," meaning that he would rather choose philosophy and die for it than live without the freedom to think and seek for truth through dialogue and examination.

The resounding impact of the Socratic method and spirit has reached much further than his accusers could have ever imagined. Even though Western philosophy has branched off and evolved in significant ways since Socrates, its "critical temper" did not change but only strengthened in the modern era after "it had to renounce its claim to a higher form of knowledge about the natural world (meta-physics) as a result of the emergence of the natural sciences" (Biesta, 2001, p. 58). Shifting away from the metaphysical, Western philosophy since the Enlightenment has expanded its scope in other directions, such as the social and the political. By the 20th century, modern philosophy has not only developed new branches of critique, e.g. Marxism and the Frankfurt School of critical theory with a distinct historical orientation, but also engendered applied fields that have become major academic disciplines today, e.g. sociology, anthropology, and political science.

Moreover, as the critical spirit of the Enlightenment challenged the traditional seats of authority in the church and the state, it began to valorize the individual for the innate human capacities people have or can develop through education. The purpose of education was redefined, by luminaries like Kant, to cultivate the autonomy and agency of individuals so they

are disposed to use their own minds. Ever since, according to Biesta (2001), "the question of critique has become intimately connected with the question of education" (p. 58). Arguably, this forged connection between education and critique continues to grow today, as evidenced by the prevalent adoption of critical thinking in American education and frequent reference to the Socratic maxims—"know thyself"[44] and "an unexamined life is not worth living"—on college campuses that espouse liberal arts education.

(2) The Deweyan Vision

The two-subsection structure and greater complexity of the arguments within this section on Dewey's conception(s) of critical thinking warrants a brief introduction as follows. The first subsection explores two works by Dewey: One (*How We Think*) that has often been cited as an "inspiration" by key theorists advocating the informal logic approach to critical thinking, while the other (*Democracy and Education*) that is less mentioned in the critical thinking movement but is arguably Dewey's most important work. Juxtaposing the two texts, we may observe how Dewey's conception of critical thinking, more often under the terms "reflective thinking" or "reflective experience," evolved from an "appraisal" approach—similar to the informal logic approach to critical thinking—to a "constructive" approach focused on creation of knowledge rather than primarily on evaluation of arguments or knowledge claims. The second subsection addresses the apparent paradox within critical thinking today, i.e., its ability to serve both democratic and nondemocratic purposes, by further exploring key concepts within *Democracy*

[44] It may be worth pointing out that the famous Socratic maxim, "know thyself," did not originate from Socrates but was one of three ancient Greek maxims carved on the entrance of the Temple of Apollo in Delphi. However, discussions of this maxim appear at least in six different Socratic dialogues, suggesting the importance of acquiring self-knowledge in Socrates/Plato's philosophy.

and Education that situates critical thinking within the larger context of knowledge production (which may serve any purposes) and education as "an approach to democracy." The subsection concludes with a view of critical thinking, perhaps implicit in Dewey's work, as a safeguard for democracy.

(2a) Critical Thinking as "Reflective Thinking/Experience"

As mentioned in literature review (I), contemporary interest in the teaching of critical thinking as an explicit educational goal in the U.S. was first advanced by the progressive education movement from 1930s to 1950s. The movement was inspired by Dewey's philosophy of education, and the concept of "critical thinking" was drawn from his 1910 publication *How We Think* (Ennis, 2011a; Fisher, 2001; Kurfiss, 1988). Interestingly, although Dewey (1859-1952) used the term "critical thinking" somewhat interchangeably with a more frequently used term "reflective thinking" in this early publication, he "settl[ed] firmly on 'reflection' or 'reflective thinking' as the preferred term for his subject-matter" in his 1933 revision of the book (Hitchcock, 2018, p. 65).[45] In addition, as "critical" or "critical thinking" appear occasionally in the first edition and only once in the new edition, it may be argued that being critical or critical thinking only constitutes an aspect of Dewey's "reflective thinking." Therefore, to understand the kind of ideal thinking or "good habits of thinking" that Dewey hoped education would foster, which is more often encapsulated by the term "critical thinking" today, we should consider more closely

[45] Even though Dewey published a revision of *How to Think* in 1933 with a new subtitle "A restatement of the relation of reflective thinking to the educative process," it is his 1910 publication that is most widely read, cited, and available to readers. It is not clear why the 1910 version is better retained. It is also not clear, according to Hitchcock (2018, p. 65), why Dewey largely replaced "critical thinking" with "reflective thinking" in the 1933 edition.

Dewey's discussions on "reflective thinking" or "reflective experience" (as he called later it in *Democracy and Education*).

In *How We Think*, Dewey (1910 [2001]) defined "reflective thinking" as "active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further conclusions to which it tends" (p. 5). This earlier or first description demonstrates essential elements that are often used to characterize critical thinking today: a skeptical attitude or disposition, thorough examination of given beliefs or claims, and formulation of judgment based on evidence. Seen from this early description of reflective thinking, it would appear that for Dewey, critical thinking primarily entails skillful reasoning and analysis of arguments. It is this rendition of Dewey's that was "endorsed" by the early proponents of the critical thinking movement (Ennis, 2015), many of whom were analytical philosophers or informal logicians.

While this logical reasoning approach to critical thinking has become the dominant interpretation, Dewey's later or second conception of reflective or critical thinking demonstrates a more robust and complex method of thinking to be fostered in formal education. In his seminal work *Democracy and Education* (1916 [2018]), for example, Dewey delineated the following steps within this thinking process and called it by a slightly varied term "reflective experience":

> They are (i) perplexity, confusion, doubt, due to the fact that one is implicated in an incomplete situation whose full character is not yet determined; (ii) a conjectural anticipation—a tentative interpretation of the given elements, attributing to them a tendency to effect certain consequences; (iii) a careful survey (examination, inspection, exploration, analysis) of all attainable consideration which will define and clarify the problem in hand; (iv) a consequent elaboration of the tentative hypothesis to make it more precise and more consistent, because squaring with a wider range of facts; (v) taking one stand upon the projected hypothesis as a plan of which is applied to the existing state of affairs; doing something overtly to bring about the anticipated result, and thereby testing the hypothesis. It is the extent and accuracy of steps three and four which mark

> off a distinctive reflective experience from one on the trial and error plane. They make thinking itself into an experience. (p. 161-162)

Not excluding the construction and evaluation arguments as an important part of reflective or critical thinking, Dewey's later description essentially took the critical thinking to a different level-- the construction and testing of a *hypothesis*. In other words, explicit emphasis is now given to knowledge creation and a more direct interaction between the agent and her environment that calls for logical reasoning *as well as* a host of other skills and dispositions, such as initiating problems, making careful observations, constructing hypotheses, and testing them for conclusion. Moreover, the rigorous, experimental, and scientific attitude conveyed through these steps of hypothesizing demonstrates a close proximity for Dewey between reflective or critical thinking and the scientific method.

In fact, as early as in *How We Think,* Dewey asserted that modern science as a paradigmatic example of reflective thinking—embodying all of its features "but with a higher degree of elaboration of the instruments of caution, exactness and thoroughness" (Dewey, 1910 [2018], p. 84). Dewey's notion of "science," however, encompasses a much wider range of inquiry and knowledge than it is typically understood to cover today. It includes not only the natural sciences, social sciences, or other scholarly disciplines of inquiry, but also a more general process of knowledge creation that entails collective efforts toward a social purpose: "The result of taking this social, instead of the purely personal, point of view is knowledge in its best sense—namely, science" (Dewey, 1909 [?], p.181). It is this expansive vision of science[46] and "method of

[46] Biesta (2009) argues that this expansive version of science makes Dewey a critique of the dominance of modern science: "rather than a celebration of the method and worldview of modern science, Dewey's philosophy actually amounts to a profound critique of the hegemony of modern science in contemporary life. Rather than an argument for the superiority of scientific rationality, Dewey's philosophy can actually be seen as an attempt to develop a more encompassing and more humane conception of rationality" (p. 35). In short, Dewey's ideal vision of science as a

science" as reflective thinking that Dewey advocated for "every sphere of human activity" (Noddings, 2012, p. 24). Arguably, therefore, Dewey's reflective thinking as a scientific method conveys a rendition of critical thinking that highlights action, purpose, and a direct relationship or involvement with the world. If his earlier version can be said to emphasize a critical examination or *deconstruction* of established beliefs and knowledge claims, the later description stresses a further step or method to solving problems and the *reconstruction* toward better knowledge and the way we experience the world.

Also worth noting is the change of terminology from "reflective thinking" (used in *How We Think*) to "reflective experience" in *Democracy and Education,* as appears in the long quotation above. Even though Dewey did not explain the change, it reflects the intimate connection between thinking and experience emphasized in the latter work. By "experience," Dewey (1916 [2012]) meant "an active-passive affair," occurring "[w]hen we experience something we act upon it, we do something with it; then we suffer or undergo the consequences" (p. 150). The inextricable connection between thinking and experience is evident in Dewey's assertions that "[n]o experience having a meaning is possible without some element of thought" (p. 155), and that thinking is "the intentional endeavor to discover specific connections between something we do and the consequences which result, so that the two become continuous" (p. 156). In the case of "reflective experience" as the above long quotation indicates, steps (2 & 5) of formulating a hypothesis and testing it onto the world may constitute the active/doing aspect of experience, and steps (1, 3, & 4) of learning from the consequence of one's own action or

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rigorous, experimental, and broad approach to knowing about the world differs significantly from the narrower version of modern science that dominates our understanding of the world today.

others' previous experiments (e.g., in the form of collective knowledge or facts) arguably constitute the passive/thinking aspect of experience. And together, the alternately occurring active and passive phases propel an iterative process in which thinking, knowledge, and experience may continue to evolve and improve.

It may be argued, therefore, for Dewey to use the term "reflective experience" instead of "reflective thinking," emphasis is given not only to the interplay between thinking and experience but also to the often neglected experiential or noncognitive[47] aspect of thinking. In other words, the kind of thinking Dewey had in mind for education to foster entails a much fuller engagement of the self or integration of "the mind and body" (Dewey, 1916 [2012], p. 151) in a thinking-experience process. To think as such, one would apply all that one knows and be ready to learn and change the *what* and the *how* one thinks and experiences.

In short, juxtaposing the two versions of reflective thinking—i.e., the initial, more "appraisal"-like version mentioned in *How We Think* with the later, more "constructive"[48] version in *Democracy and Education*, one wonders that had early proponents of critical thinking drew inspiration from Dewey's latter work, a different conception of critical thinking might have dominated our understanding and application of it today.[49] "Critical thinking"—as a term for the kind of thinking that education aims to espouse—would have been perceived beyond the typical

[47] Dewey (1916 [2012]) stated the following: "Experience is primarily an active-passive affair; it is not primarily cognitive…. It includes cognition in the degree in which it is cumulative or amounts to something, or has meaning" (p. 151). This quotation suggests that the cognitive aspect of experience comes from thinking which gives meaning to experience—the doing and the undergoing.
[48] As Hitchcock (2018) described, while the approach to critical thinking proposed by many key theorists or informal logicians focuses on "appraisal" of arguments or claims, Dewey's conception (as delineated in *Democracy and Education*) emphasizes "construction" based on observations and experiments (p. 11).
[49] At the same time, for reasons discussed more extensively in literature review (I), it is not unsurprising that the kind of critical thinking espoused in the English-speaking countries should emphasize logical thinking and analysis, because the U.K. and the U.S. have been strongholds for analytical philosophy.

focus on argumentation and analysis; it would have been understood as a thinking that is packed with purposeful actions for improving knowledge, experience, and even the thinking method itself. Moreover, as Dewey perceived education as "an approach to democracy" (Biesta, 2006, p. 35), critical thinking would also have been expounded more explicitly for its function in the maintenance of democracy.

(2b) The critical thinking paradox & its relation to democracy

Advocators and theorists of critical thinking have often justified the importance of critical thinking by referring to its role in democracy, specifically in fostering democratic citizens who can think for themselves and make informed decisions upon which a functioning democracy depends. However, such references generally do not go any deeper into explicating the *how*: How does critical thinking—particularly in the version it has often been conceived as argumentation and logical analysis—contribute to the working of a democracy that is meant to include all members and the multitude of voices and interests they possess? Yet this presumed connection between critical thinking and democracy arguably calls for closer examination particularly today, because advocacy for critical thinking has gained global momentum in recent decades. The popularity of critical thinking across the globe, among nations democratic or not, seemed to have been prompted not so much by its traditional association with democracy as by a newer function in stimulating economic competitiveness and innovation. It is thus imperative to ask the following question that has been largely ignored in the hype around critical thinking by its advocates in education and business alike: *How can a way of thinking both foster democracy that protects the independence and agency of its people and at the same time serve a global economy under*

neoliberalism, which has been increasingly successful at curtailing people's freedom and threatening the quality of their livelihood under its relentless drive towards greater efficiency?

The paradoxical potentials or claims about the function(s) of critical thinking may be better understood in light of its philosophical origin relative to knowledge and the increasing knowledge-orientation of our economy and society since the Enlightenment Age. While the defining nature of late modernity in its avid pursuit of knowledge and increasing reliance on knowledge expertise will be explicated by drawing upon the works of Giddens and Beck in a later chapter, the creative relationship and tension between critical thinking and knowledge will be explored in the following by leaning on John Dewey's philosophy of education and democracy.

According to Dewey in *Democracy and Education* (2012 [1916]), knowledge can be characterized as "that which is settled, disposed of, established, under control. What we fully know, we do not need to think about." Even though what is taken as knowledge, fact, or truth at one time may be proved false later, it is at the time "assumed without question." In other words, knowledge functions like beliefs in the way that it is often transferred and used, providing us the necessary assurance or handiness without which actions would be impossible and we would experience "general imbecility" (p.313-314). By contrast, thinking—specifically critical thinking—starts "from doubt or uncertainty" and "through its critical process true knowledge is revised and extended, and our convictions as to the state of things reorganized" (p.313). Over time, this way of thinking, inquiring, and searching for firmer grounds of truth or knowledge has led to "a revolution of prior conceptions of the world" (p.314). Momentous changes or what Thomas Kuhn called "paradigm shifts" were brought not only to the knowledge field but also to society or the world as a whole, ushering it into modernity and now the late modern era. As

Dewey also pointed out that the past centuries, since the Enlightenment, have been a period of constant "revision and reorganization of beliefs" as "[m]en set out from what had passed as knowledge, and critically investigated the grounds upon which it rested" (p.314).

Yet, as Dewey further asserted, societies are by nature "governed by custom" which tend to suppress the growth of new ideas that challenge their established beliefs or norms. Even though Western or democratic societies in recent centuries have "first permitted, and then, in some fields at least, deliberately encouraged the individual reactions which deviate from what custom prescribes" (p.314-315), these progressive times and social changes toward free thinking and inquiry would not have been possible without individuals "who looked at things differently from others" and persisted in spite of personal danger. Socrates, among countless others, is a case in point. In other words, pivotal has been "the role of the individual, or the self, in knowledge… (or) reconstruction of accepted beliefs" and in the transformation of societies (p.314). This chain of reaction from individual agency to knowledge production and social change highlighted by Dewey foregrounds the iterative nature of knowledge creation or recreation through thinking that is critical—i.e. independent and careful in observation and judgement and perpetually open to revision upon new evidence—and the transformative power individuals may exercise by possessing abilities to think as such.

It may also be argued that through critical thinking and its power in changing knowledge and society, the codependency between individuals who think critically and society that tolerates or espouses such individuals has grown stronger. This may be especially true in the current global age where knowledge production and technological innovations have become the driving forces behind the world's economy. Critical thinking is, therefore, highly sought after today by countries

democratic and nondemocratic alike, for building workforces that will keep nations competitive and strong in an increasingly globalized and perhaps uncertain future.

Yet the role of critical thinking in generating new knowledge important for society or even social change does not necessarily explain how it safeguards democracy, especially when the very economic system under neoliberal globalization that eagerly demands critical thinking in the past few decades has become more clearly "antidemocratic" (Harvey, 2005, p. 38). Even though Dewey in *Democracy and Education* did not seem to provide an explicit discussion on how critical thinking or reflective thinking/experience contribute to the maintenance of democracy, the connection may be established through his discussion of education that is situated in and for democracy.

According to Dewey (1916 [2012]), education may differ in terms of "spirit, material and method," reflecting the type of society within which it operates (p. 88). Therefore, the kind of education fostered in a democratic community would be substantially different from that in a non-democratic one, as Dewey described in the following: "Particularly is it true that a society which not only change but which has the ideal of such change as will improve it, will have different standards and methods of education from one which aims simply at the perpetuation of its own customs" (P. 88). In other words, one way to understand democracy is in its receptivity toward change, and thus education situated in and for democracy would reflect this progressive attitude.

In addition, as education "consists primarily in transmission through communication" (p. 12), the type of communication conveying a democratic spirit would invariably be distinct also. Communication as such refers not to any kind of verbal exchange between people, but one that

specifically encourages change for all who take part of the communication. Dewey described this ideal of communication in the following:

> "To be a recipient of a communication is to have an enlarged and changed experience. One shares in what another has thought and felt and in so far, meagerly or amply, has his own attitude modified. Nor is the one who communicates left unaffected…. [because t]he experience has to be formulated in order to be communicated. To formulate requires getting outside of it, seeing it as another would see it, considering what points of contact it has with the life of another so that it may be got into such form that he can appreciate its meaning. (p. 8-9)

Communication as such is educative or education in the broad sense, because it informs, challenges, and expands the self among individuals who partake the communicative interaction. Such interaction would not only be personally gratifying but also socially significant, for it builds common understanding and interests vital for the operation of democracy, and it also transforms social life from its typical "machine-like plane" to an arguably more meaningful and "genuine" mode of operation (p. 8).

Its importance—i.e., communication that is educative or education that is communicative —to democracy is evident in the way Dewey (1916 [2012]) defined the concept: "A democracy is more than a form of government; it is primarily a mode of associated living, of conjoint communicated experience" (p. 94). In other words, the essence of democracy to Dewey lies not so much in its necessary structure in the political dimension[50] as in its actual content in the social dimension, manifested the way in which people associate or relate to one another in everyday

[50] The necessary political dimension of democracy includes components that are typically perceived as the essence of democracy: e.g., "universal suffrage, free and frequent elections, or congressional and cabinet government" (Glaude, 2010, p. 9).

life and through communication.[51] It may be argued, therefore, the quality of communication with a society or social group both gauges and safeguards the health of its democracy.

It may also be noticed that parallel characteristics of perpetual change and growth resulting from such communication can also be identified in Dewey's description of critical or reflective thinking, which has arguably propelled constant revision of knowledge and progressive social development in the West. Even though Dewey did not seem to have provided an explicit link between communication and critical/reflective thinking (i.e., not in my knowledge of primary literature by or secondary sources on Dewey), the connection may be inferred in the following way. That is, communication as such is an external manifestation or extension of a type of thinking that provides communicative content or thoughts and that shares its functions in expanding the understanding of oneself and of others at the individual level and in creating connectivity and common grounds at the societal level.

Granted, critical or reflective thinking as described by Dewey (1916 [2012], p. 161-162)[52] seems to resemble more of a generalized scientific method for knowledge production about the external world, rather than a pathway towards self-understanding and interpersonal maturation as suggested in Deweyan communication. Yet for it to be a conceptual term embodying "good habits of thinking" fostered by education situated in and for democracy, it must be the kind of

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[51] Dewey (? [1997]) argued why democracy should not be evaluated foremost at the political level but at the social level, for understanding democracy at the mere political level may overlook the actual practices and condition of a democratic society as demonstrated in the ways people communicate and interact with one another: "Merely legal guarantees of the civil liberties of free belief, free expression, free assembly are of little avail if in daily life freedom of communication, the give and take of ideas, facts, experiences, is choked by mutual suspicion, by abuse, by fear and hatred. These things destroy the essential conditions of the democratic way of living even more eventually than open coercion…" (p. 227-228).

[52] See discussion of the long quotation from Dewey (1916 [2012], p. 161-162) in the previous subsection.

thinking that either directly contributes to communication as such or bear many similarities to another thinking that generates communication essential for democracy. In either case, critical thinking as conceptualized by Dewey would entail not only the "appraisal" function of evaluating claims (as defined under the term "reflective thinking" in *How We Think*) or the "constructive" function of generating knowledge (as described under the term "reflective experience" in *Democracy and Education*), but also a "connective" function of connecting to others and expanding the self (as implicitly conveyed by communication and/or education in a democracy that critical thinking partakes).

In short, for critical thinking to play an important role in safeguarding democracy, it needs to be conceptualized beyond its "appraisal" and "constructive" functions for knowledge evaluation and creation. Critical thinking situated in and for democracy would have to include both of these two functions but also going beyond the analytic/knowledge domain to apply itself as the thinking that furthers personal development and that connects people in the interactive/everyday life domain. Critical thinking as such would perhaps bear lots of resemblances to the kind advocated by feminist and postmodernist theorists as discussed earlier, where the purpose of critical thinking would be to support one another to be the best version we each can be. In other words, for those who promote critical thinking in the current age of neoliberal globalization, it must be known that critical thinking can serve multiple, even contradictory purposes. Therefore, a particularly inclusive conception of critical thinking needs to be promoted and practiced if it is indeed to play a vital instead of lip service role in safeguarding democracy.

(3) Section Conclusion

Considering the concepts of critical thinking as presented in Socrates and Dewey's works, it becomes clearer that critical thinking in its philosophical origins is a rich and transformative concept and method of examination, inquiry for a broad set of concerns vis-à-vis knowledge, selfhood, and social life. It includes argumentative analysis as typically conceptualized by key proponents in the contemporary critical thinking movement, yet beyond that it ultimately cares about search for better knowledge, wellbeing of the individual, and qualities of a society that can either support or inhibit such concerns for truth, meaning, and happiness.

The differences between the Socratic and Deweyan conceptions of critical thinking may seem obvious. For example, while Socrates' elenchus functions primarily to uncover ignorance and unexamined assumptions or knowledge claims, Dewey's "reflective experience" operates to formulate and test hypothesis for better knowledge construction. It may also be argued that the self-knowledge component of critical thinking in the Socratic dialogues is demonstrably clearer than in Dewey's philosophy. However, the discussion above also demonstrates that the kind of thinking that is essential to democracy as Dewey perceived it would invariably entail changing and enlarging the self through communicative interaction with the other—and such internal change would not likely happen without a recognition of one's ignorance or unexamined beliefs.

In summary, critical thinking as seen from its philosophical origins seem to operate with equal importance at the cognitive, intrapersonal, and interpersonal dimensions. The transformation through critical thinking happens not only to knowledge about the external world but also to our sense of the self within and association with others in the social world.

2. Psychological Perspective

(1) Psychological Relevance For Critical Thinking

It may be noticed that in spite of their different conceptions of critical thinking, neither Socrates, Dewey, nor the more recent theorists demonstrated an explicit concern for the learners' perspectives in the process of learning to think critically. Yet Siegel's challenge to Paul on the ground of epistemological uncertainty may allude to the tremendous magnitude of change that the practice of critical thinking, particularly in the strong sense, may pose to students and practitioners. If the potency of critical thinking for transformation is apparent in Socratic dialogues and in Dewey's philosophy, then its potential effects on individual learners cannot be neglected by those who aim to promote it. Therefore, insofar as critical thinking is to be taught in a strong sense, entailing examining one's deeply held beliefs (e.g. about oneself, others, knowledge, and authority), better and more explicit understanding needs to be gained about its potential impact the basic constructs by which we build our sense of self. This pedagogical concern brings us to another line of critical thinking research that is not often mentioned in the central debates on critical thinking—the works on cognitive development by developmental psychologists.

As mentioned earlier, much of the early popularity of critical thinking in education (before the critical thinking movement starting around the 1970s) may be traced to the works of educational psychologists or psychometricians who were inspired by Dewey—a fellow psychologist as well as philosopher of education. The most widely known critical thinking test, the Watson-Glaser Critical Thinking Assessment, adopts a conception of critical thinking that aligns closely to Dewey's (Fisher, 2001; Hitchcock, 2018). In addition, the widely referenced

Bloom's taxonomy or hierarchical list of "intellectual abilities and skills" that overlaps with those typically covered under "critical thinking," is also constructed by a group of psychologists who had previously worked in projects sponsored by the progressive education association founded by Dewey.

In spite of the early contributions made by educational psychologists towards the promotion of critical thinking, central debates within the ensuing critical thinking movement has been largely led by philosophers and did not seem to engage closely with the psychologists' work. Rather, acknowledgement may be given, if at all, on the passing of the psychological perspective (Ennis, 2011a; Paul, 2011). Granted, philosophers and psychologists often ask different questions regarding the same topic, as Ennis (2011a) summarized in brief:

> To oversimplify, the philosophers tended to emphasize seeking the truth (or rightness or correctness) of a process or result, and using rational methods of doing so; psychologists tended to emphasize empirical relationships, such as what causes what, including such processes as metacognition, transfer of critical thinking learning to a new area of application, and problem solving. (p. 8)

Yet psychological research on the topics such as "epistemic development," "reflective judgment," or "self-authorship" may provide relevant and important suggestions not only for how critical thinking can be effectively taught but also how it can be better conceptualized from the learners' perspectives. Drawing upon psychological research that typically situates critical thinking within the larger context of human development that entails not only the cognitive but also the intra- and interpersonal dimensions, the following discussion demonstrates how psychological perspectives can support a more holistic conceptualization of critical thinking that is much needed in the global age.

According to Kurfiss (1988), psychological research relevant to critical thinking since the 1970s has been significantly shaped from the work of William Perry, a Harvard educational psychologist. Perry's seminal work *Forms of Intellectual and Ethical Development* published in 1970 has grounded subsequent theories on the cognitive development of college students to this day (Love, 1999). Tracing the development of college students, particularly the relationship between their epistemological positions and their value and meaning-making formations, Perry proposed a scheme of nine positions that are also summarized into three general categories: dualism, relativism, and commitment. *Dualism* refers to the initial position where students receive knowledge as facts, defer judgment to authority, and consider right vs. wrong as the essence of morality. *Relativism* describes a more developed position where students recognize multiplicity and the subjective nature of knowledge claims but do not know how to go beyond their own doubts, uncertainty, and subjective opinions. *Commitment* entails students recognizing the necessity of taking a position and the responsibility that accompanies it in a relativist world.

Most students, argued Perry, follow a developmental trajectory, where they begin college having a dualistic perspective, transition to a relativistic outlook, and finally (a small percentage of students) reach the stage where they are committed to a set of examined values. Some students may experience *deflection,* when they feel "unprepared, resentful, alienated or overwhelmed to a degree which makes [their] urge to conserve dominant over [their] urge to progress" (p. 57-58). According to Perry, deflection can take any of the three forms: *temporizing*—a prolonged pause in development, *retreat*—a regression to an earlier position, and *escape*—an alienating dissociation from complexity as well as responsibility.

Even though Perry's scheme was based on studies of only male students from an elite university and therefore had serious limitations (Kurfiss, 1988; Zhang, 1999 & 2001), it does propose a holistic approach to understanding critical thinking pedagogy as students experience it. For example, Perry's model demonstrates that students in the same college class may have epistemological and value assumptions that are different from one another as well as from the teacher. For those who perceive knowledge as facts and defer to the teacher authority as the source of knowledge, critical thinking in the "weak" sense as evaluation of knowledge claims (e.g. by an established authority) or in the "strong" sense as examination of one's assumptions can be an unfamiliar and overwhelming experience both intellectually and emotionally. Therefore, a developmental psychology perspective is not only helpful but necessary for a full investigation into how critical thinking works and how it should be taught, especially given how the student population has been diversifying. It contributes an important addition to the teaching side of critical thinking. Namely, teaching critical thinking in the "strong" sense or an arguably even stronger sense (i.e., "morally oriented" as Noddings advocated) entails teachers taking into consideration students' varied epistemological positions and the different effects critical thinking may have on their overall development.

(2) A Holistic Approach to Critical Thinking

Despite the link between critical thinking and self-knowledge (as evidenced in philosophical works) and the necessity of fostering students' self-development through education, the two aspects are not often explored or manifested together in university pedagogy and curricula. Neither in philosophical discussions of the Socratic dialogues, nor in university

settings that evoke the Socratic maxims to justify the value of liberal arts education, is the meaning of “an examined life” or “know thyself” typically expounded beyond a mention of its nominal form. Rather, self-knowledge is presumed to emerge automatically through academic learning and inherently benefit the person or “self” that gains a college education.

In fact, to explore critical thinking holistically in association with self-development may seem counterintuitive, contrasting sharply with the dominant manifestation of critical thinking in education as “skillful reasoning” (Fisher, 1999) for the purpose of argument construction and analysis (e.g. prominent in the Social Sciences and Humanities) or logical problem-solving (e.g. prevalent in the STEM fields). As developmental psychologists Patricia King and Karen Kitchener (1994) analyzed, critical thinking has typically been conceptualized as logic skills for inquiry and problem-solving, especially for “well-structured” problems that would yield to “single correct answers” or “can be answered within a single frame of reference with a specific set of logical moves” (p. 10). Mathematical problems or SAT critical reading questions are examples of “well-structured” problems. King and Kitchener also reported that the two widely-used critical thinking assessments reviewed , i.e. the Cornell Critical Thinking Test and the Watson-Glaser Critical Thinking Appraisal, consist of mostly well-structured problems (with the latter including a mix of ill-structured problems).

In other words, highlighted differently by educational psychologists is the ability to “make defensible judgments about vexing” ill-structured problems that need to be urgently developed for students in face of an increasingly complex world (p. 1-2). By “ill-structured problems,” King and Kitchener referred to those that “cannot be described with a high degree of completeness or solved with a high degree of certainty” and that can be called “multilogical problems since

whole frames of reference compete for their solution" (p. 10-11). Social controversies, such as safety concerns over food additives and bias issues in news reporting, are examples of ill-defined problems explored in their work.

King and Kitchener called the type of thinking that corresponds to these complex problems "reflective judgment" and attributed its origin to Dewey. According to King and Kitchener, even though Dewey himself used the term "reflective thinking" [53] interchangeably with "critical thinking" (p. 8), they coined the term "reflective judgment" to contrast with the actual praxis of critical thinking in education that typically focuses on "monological" or well-structured problems and that often fails to recognize that epistemic assumptions (i.e. views on knowledge and the process and limits of knowing) "play a central role in recognizing a problematic situation" and that without which critical thinking could not take place (p. 9).[54] This emphasis on epistemic assumption or readiness by King and Kitchener echoes Perry's work on epistemological development; their work all highlight the need for sensitivity toward students' varied epistemic background in the teaching of critical or reflective thinking.

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[53] King & Kitchener described the following about "reflective thinking": "Reflective thinking requires the continual evaluation of beliefs, assumptions, and hypotheses against existing data and against other plausible interpretations of the data. The resulting judgments are offered as reasonable integrations or syntheses of opposing points of view. Because they involve ongoing verification and evaluation, judgments based on reflective thinking are more likely to be valid and insightful than are beliefs derived from authority, emotional commitment, or narrow reasoning (Dewey, 1933, 1938)" (p. 7).

[54] As a note of clarification, what is being considered as critical thinking in this dissertation (by myself and by numerous participants, as will be explained later in the detailed case analyses) is closer to King and Kitchener's reflective judgement or Dewey's reflective thinking than to the dominant version of critical thinking described in their work. My rationale for keep using the term "critical thinking" in that while starting a new term may have its advantages (e.g., highlighting the distinctiveness of the new term from the old), it may also further confine the old term "critical thinking"—which is contested among its theorists—to operate in a narrow way that King and Kitchener described. It may be better to utilize the momentum that the term "critical thinking" has already generated in education and beyond and advocate for a reconceptualization in order to further develop it for problem-solving of a more complex nature in the social, everyday life domain as King and Kitchener proposed.

Even though King and Kitchener's work focused strictly on presenting the science behind their "reflective judgment model" and the research on its application, their advocacy pointed to a lack of effective teaching on reflective or critical thinking for complex real-world problem solving in higher education. While their scholarship often made reference to controversial social issues as paradigmatic problems that demand reflective judgments, life decision-making and personal dilemmas may also constitute ill-structured problems that reflect some of the similar undergirding forces that sustain social controversies. We will see more of this reflection in the experiences of transnational Chinese students in the later part of the dissertation analysis. Meanwhile, it may be worth noting that the interconnection between the intellectual and the personal domains was, in fact, explored in King and Kitchener's survey of others scholars' research on "character development"[55] that includes topics on moral judgement, identity (i.e. ego/psychosocial) maturation, and wisdom. For clarification, these subdomains within character development overlap with the cognitive, intrapersonal, and interpersonal dimensions explored in this dissertation under the umbrella term "self-development."[56]

According to the King and Kitchener, extant research revealed that growths in these subdomains under "character development" are often interconnected with advancement in reflective judgement. More specifically, the correlation between development in reflective

[55] The wide range of issues explored under "character development" has to do with the broad concept of "character," entailing "the conceptions an individual has of what is right or fair, those personal attributes that influence an individual to act on those beliefs, as well as to other enduring personal traits that are central to the individual's identity, including wisdom" (p. 204).

[56] I use "self-development" in this dissertation research to allow for a more flexible and broader considerations around the development of personhood and to bypass the more heavily value-orientation suggested in the term "character development." As King & Kitchener mentioned, scholars have suggested that "one of the difficulties in promoting character development has been that the specific values taken to constitute good character often change from generation to generation" (p. 204). In addition, "character development" is a big educational topic in itself that is beyond the limited scope of this dissertation that focuses on critical thinking.

judgment and in moral reasoning has shown to be positive; in comparison, less clear is the correlation between reflective judgment and ego/psychosocial development and wisdom.[57] Nevertheless, King and Kitchener also reported that improvement in reflective judgment seems to play "a necessary but insufficient prerequisite role" in development of the self and wisdom, while other sources of learning beyond the intellect, such as life experiences, are needed for development in these more complex subdomains. Suggesting more conclusive research is needed on the link between reflective judgment and these more complex subdomains, King and Kitchener concluded, however, that it behooves educators to promote intellectual and character development simultaneously:

> …current studies] underscore the fact that college students and adults alike are struggling with ill-structured problems in many aspects of their lives. Educators might be more successful in promoting development in the intellectual domain if they acknowledged that similar struggles are occurring in students' personal lives and that these personal struggles may have a profound effect on the level of reflective thinking that students exhibit. (p. 214)

Their suggestion that reflective judgment may be best fostered in view of learners' life experiences echo with the link between critical thinking (i.e., in a broader sense that also addresses ill-structured problems) and selfhood or self-development that this dissertation will further explore by taking a holistic approach to critical thinking.

Arguably, this holistic approach to critical thinking or intellectual development aligns with the professed goals of higher education, according to King and Kitchener, for they are "often stated in terms of the development of students' character as well as of their intellect" (p. 203).

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[57] "Wisdom" is described by King and Kitchener as "the culmination of adult development" that is manifested as "both a particularly deep or insightful way of knowing and a far-seeing or perceptive way of being with and understanding others." (p. 217-218). Wise individuals not only understand "the limits of knowing" and "recognize that some problems are ill structured," but also possess "the ability to make reasoned judgments in light of these limits…" (p. 219).

In fact, the desirability of intellectual development is often justified on the ground of its use "in the service of helping others, improving society, being better citizens, or other prosocial ends" (p.221) In addition, King and Kitchener argued that higher education has obvious advantages with regard to fostering students' character development, because "college students are often enrolled in college during times of life transition…when they are actively experimenting with and consolidating a sense of identity: who they are, what they can do well, what is important to them, how they want others to see them" (p. 203). Research revealed that in comparison to older students, traditional-age college students are highly receptive "to the impact of education on the development of both intellect and character" (p. 215). Given these favorable conditions and purported commitment, it remains that higher education needs to invest into effective educational means to support students' intellectual growth and self-development.

The same call on higher education to do more for its commitment to its students has been echoed by other educational psychologists. For example, Baxter Magolda (2004) argued that while recognition for holistically cultivating students' maturation abounds in educational policies, "educational *practice* has yet to be substantively reformed to facilitate these [learning] outcomes"—i.e., cognitive maturity, integrated identity, and mature relationships (p. 7). She attributed this slow reform to a number of long-standing factors: "faculty training in their discipline rather than in pedagogy," "the historical bifurcation of academic and student affairs," and "the lack of attention to the developmental foundations [i.e., cognitive, intrapersonal, and interpersonal foundations] on which complex learning outcomes stand and the lack of attention to the way these foundations interrelate to support these outcomes" (p. 7).

Drawing from Baxter Magolda, King and Kitchener's analyses, it may be argued that the central question lies not in whether higher education should take an active interest in fostering students' holistic development and incorporate the intrapersonal and interpersonal domains into the design of its course pedagogy and academic curriculum, as educational psychologists have demonstrated amply both the benefit and necessity to do so. Rather, the matter rests on how to do it and how aware and committed a given educational institution or educator is in adopting this holistic aim in praxis.

(3) Section conclusion

In summary, the above discussion of psychological research pertaining to critical thinking demonstrates a more holistic approach that situates critical thinking—under the psychological parlance of "epistemological development," "reflective judgment," or more generally "intellectual development"—within a broader concern for college students' development and wellbeing. Echoing Perry's groundbreaking work, King and Kitchener as well as Baxter Magolda's research continued to demonstrate the close link between epistemological/intellectual development and ethical/character maturation—and thus, the benefit in fostering them together. King and Kitchener also highlighted the type of questions—i.e., complex or "ill-defined" questions replete in one's life experiences—that need to be dealt with by critical thinking (or "reflective judgment," in their terminology). It may be thus argued that psychological research exposes the epistemological and value assumptions laden within typical/philosophical conceptions of critical thinking as argumentative analysis, both in terms of how it should be practiced and the type of questions or claims that are being addressed.

Yet as its theorists typically agree, critical thinking is or should be transferable across domains—e.g., academic or everyday life. It may be, therefore, beneficial and even necessary for its philosopher-theorists to engage more closely with psychologists working on similar topics. Educational philosophers may need to do more than acknowledge their shared interests with psychologists and occasionally referencing to psychological research as a mere point of interest, as in the following case: "Most of my colleagues in educational psychology tell me that ordinarily transfer can generally occur if—but only if—we teach for it. But one must [also] be sensitive to a range of exceptions" (Ennis, 2011b, p. 12). Ennis' reference to a specific and relevant psychological findings seems to be a rare gesture among critical thinking theorists, helping to expel a typical assumption within the scholarship that the transferability of critical thinking across domain might be somewhat automatic.

It may still be argued, however, that more can be done to collaborate a conception of critical thinking that would make it indeed more transferable across different domains or applicable to questions of varied complexities in each domain. Co-constructing a vision of critical thinking may also improve its appropriateness for learners of diverse epistemic background and with different socio-political and cultural concerns. Such reconceptualization of critical thinking and its pedagogy may serve as concrete guidelines for higher education to actualize its commitment for the needed holistic approach to education.

3. Global/Cross-cultural Perspective

(1) Critical Thinking in a Global/Cross-Cultural Context

The above account of contested conceptual and pedagogical questions concerning critical thinking demonstrates, though does not exhaust, the intricate philosophical and psychological complexities within this educational concept. Consider now these questions situated in a global and thus cross-cultural context as critical thinking is being increasingly adopted around the world today and experienced by students coming from different culture and/or educational backgrounds, such as the transnational Chinese undergraduates studied in this dissertation research. Following from the debates on critical thinking, particularly the concerns raised by Siegel and Perry described prior, it seems not unreasonable to hypothesize that for these students, the challenges as well as consequences that come with the exposure to critical thinking may indeed be urgently complex. The existential and psychological dimensions of critical thinking may become more salient in their experiences, because by crossing cultural and national boarders people are more likely to be outside of their frames of reference, to be exposed to the unnerving amount of uncertainty as well as possibilities for constructing new meanings, and to experience a potentially conflicting sense of loyalty to authorities now situated in two or more geographic and cultural locations.

As the dramatic increase of student migration in the recent decade represents one segment of the vast canvas of internationalization and globalization, critical thinking in and for the global age, therefore, needs to consider more holistically and inclusively of students coming from different epistemological positions, socio-political ties, and value systems. To be effective and responsive, it needs to ask: *How might students' varied backgrounds play a role in the way*

they respond to critical thinking, and how might critical thinking impact students' academic outcomes and overall development?

While the psychological perspective highlights the necessity for critical thinking to be fostered in a more holistic manner, sensitive to students' diverse epistemological background or readiness, critical thinking in academia may be taught in an increasingly technical, skill-based manner as it is taken for granted as a best practice. Let's take the college-level writing programs, for example. Each year, college writing programs offer mandatory courses to many incoming college freshmen across the country, introducing them to the kind of critical thinking and writing skills required at the university level. A good piece of academic writing is generally taught to contain the following three components: a clearly articulated thesis or argument in the introduction, followed by body paragraphs that are logically connected, and supported by sound evidence and consideration for counterevidence. These three basic components—central argument, logical reasoning, and warranted evidence—represent a broad view of what critical thinking entails at the college level writing that are so commonly taught that they have become self-evident, as if value-free, techniques for every college students to master.

However, important value assumptions may be embedded in this seemingly self-evident and value-neutral writing standard or "best practice." From a cross-cultural perspective, there are important value assumptions at the basis of these techniques that need to be made transparent, and educational researchers and writing instructors are becoming increasingly aware of the need for explicit and culturally sensitive instructions (Kutieleh & Egege, 2004; Shaleen, 2016). This is because in emphasizing a strong thesis statement, the act of writing as such valorizes the voice of the individual and assumes certain democratic rights, such as freedom

of speech, that validate one's experience and ability to co-construct meaning about the world. Moreover, in requiring logical reasoning, such writing prioritizes direct expression and rational thinking. Furthermore, in expecting warranted evidence, the practice conveys an openness about knowledge as a creation rather than discovery, suggesting that there are no right or wrong answers but multiple perspectives and interpretations.

Using Perry's model in addition, it is not difficult to see that these important assumptions at the foundation of college writing courses are beyond the mere cognitive or epistemological level, embodying ontological and ethical dimensions that may not be shared by writers from other socio-political and literary cultures. For students coming from non-Western cultures and non-democratic countries, learning to think critically may entail a total realignment of one's understanding of knowledge, self, and authority. It is likely that for some of these students, what begins as a value-free cognitive exercise may lead to a profound overhaul at the intrapersonal and interpersonal levels.

As will be explored in greater details in the theoretical framework chapter, research in constructive developmental psychology (particularly under the "self-authorship" theory) has found that when experience of dissonance is too great or overwhelming for the learner, it could inhibit rather than stimulate development. Therefore, for optimal teaching of critical thinking, findings from psychological research need to be taken into pedagogical and even conceptual consideration. In other words, as the promotion and adoption of critical thinking expands globally and cross-culturally today, it will have to be conceptualized in a more inclusive and comprehensive way for students of increasingly diverse sociopolitical or cultural backgrounds.

(2) Critical Thinking Under the Force of Neoliberal Globalization

The widespread interest in critical thinking over recent decades calls for deeper analysis. This is because on the one hand, its increasing adoption seems to correlate with the spread of political and/or economic democratization around the world since the end of the Cold War; on the other hand, critical thinking's global development probably has more to do with its economic and innovative potentials than political or educational idealism that it can also embody. Not often recognized or mentioned by critical thinking theorists about the rising interest in critical thinking is the economic force under neoliberal ideology (that also emerged with great popularity in the 1970s) that has infiltrated all spheres of the society—from politics to education, "bring[ing] all human action into the domain of the market" (Harvey, 2005, p. 3).

It seems that in the early 80s when critical thinking was first taking its roots as an important and necessary educational requirement in the United States, critical thinking was inextricably linked to market economy. The influential educational policy report, *A Nation at Risk* (1983), which urged schools to improve students' basic literacy and numeracy skills as well as *"higher order" intellectual skills* (another name for critical thinking), "was groundbreaking in emphasizing the importance of education to economic competitiveness and the failings of American schooling in comparison with international competitors" (Mehta, 2015, p. 20). In other words, the report marked the beginning of a shift that prioritizes global economic interests over perhaps other purposes of education, such as cultivating a democratic citizenry.

It is probably no coincidence, therefore, that the rise of public interest in critical thinking correlated with the emergence of this overriding concern for economic competition in the global stage. In other words, the appeal of critical thinking as a set of general thinking skills purportedly

transferable across disciplines and contexts is not only an intellectual but also economic one. As a case in point, interests in critical thinking have increased in the business sector in the recent decade, despite a weakening of interests in the academic circle; many employers now consider critical thinking as "the highest ranked skill," vital for business innovations and competitiveness (Davies & Barnett, 2015, p.4). Interest in critical thinking as a core educational component is also retained in the newer educational buzz words in the recent decade, such as "21st century skills" and "deeper learning" that aim to "transform education for the 21st century" (Wagner, 2015, p. 169).

The development of these "innovative" concepts are largely sponsored by business and government leaders, who share the neoliberal rationale that by teaching students transferable skills or knowledge, they will become a strong national workforce that would be able to meet the demands of an increasingly uncertain future shaped by rapid technological advancement and intensifying global competition (Pellegrino & Hilton, 2012). Likewise, the rhetoric with which critical thinking is being promoted in developing countries also resonates with this economic imperative, as "it is presented as a necessary 'life skill' that allows individuals to 'face the challenges facing the nation'," such as competition in the global market and intractable future of a rapidly changing world (Schendel, 2016, p. 550).

In the aggregate, educational migrations (e.g. the movement of transnational Chinese students studying abroad) and educational reforms around the world demonstrate that critical thinking is being popularized as a global educational concept. Yet just as critical thinking may be further promoted by the neoliberal economic rhetoric and globalization, the richness that critical thinking contains may be undermined by the same global force that is actively espousing it. As

Davies and Barnett (2015) observed, in spite of the growing popularity of critical thinking in the business sector, interest in critical thinking seemed to wane in universities and the question of critical thinking—i.e., *whether it should be taught, and if so, what kind*—remains contested among various social groups: "Many would concur that recognizing and constructing arguments—that is, critical thinking as reasoning skills—is valuable and important. Much less agreement attaches to the idea of educating for radical social and political change ('critical pedagogy')" (p. 5).

In other words, the kind of critical thinking that has been promoted since the 1980s and perhaps more so today with direct involvement of the business sector is therefore likely to be a reductionist, apolitical, and technocratic version of what critical thinking can be in the full sense. Moreover, drawing upon Harvey's (2005) analysis of neoliberalism, it may be further argued that as democracy becomes increasingly precarious under neoliberalism that espouses unchecked individual freedom and market ethics, the optimal sociopolitical condition that some critical thinking theorists, such as Burbules and Berk (1999), have emphasized for fostering critical thinking may be fizzling out.

(3) Section conclusion

While the social condition for critical thinking may be growing less favorable in a way under neoliberal globalization, it may also be argued that the need to promote critical thinking may become more important. That is, the kind that fosters self-knowledge, interpersonal connectivity, and democracy—as espoused by Socrates, Dewey, and feminist/postmodern theorists discussed previously. The urgency for this more inclusive conception of critical thinking

may be further supported by drawing upon sociological analysis of "late modernity" by Giddens and Beck, which may be seen as an overlapping term for "neoliberal globalization." Drawing upon this sociological perspective (which will be explained in detail in the theoretical framework chapter), it becomes clearer that conditions of late modernity expose individuals to greater freedom and opportunities on the one hand, but also greater personal risks and responsibilities on the other hand.

In other words, the fast-changing and complex intellectual, psychological, and social demands on the individual today call for education—as a key site and force of massive migration and knowledge expansion—to provide the necessary preparation for its students. As the importance of critical thinking, however variously defined, is being increasingly recognized or promoted around the world, a holistic conception and approach to its teaching would be crucial in preparing students for the challenges and possibilities of late modernity. The following literature review on transnational Chinese students further demonstrates the experiences of migrant or cross-cultural students and the need for a more inclusive pedagogy and holistic conceptualization of critical thinking in a global/cross-cultural era.

(Part C) Transnational Chinese Students & Their Critical Thinking Development

1. Transnational Chinese Students[58]

(1) Term & Scope

By "Transnational Chinese Students," I lean on Vanessa Fong's (2011) definition, in which she referred to "current or former Chinese citizens in my study who have ever taken classes outside of China" (p. 35). While almost all of the Chinese students in her study ventured abroad initially with a Chinese passport, thus qualifying them as international Chinese students, some succeeded in securing permanent residencies or citizenships of their host countries, changing their standing to an immigrant status. Therefore, even though the concept of "transnational Chinese students" is greater than that of "international Chinese students," they are fluid and temporal. Moreover, most of the studies on Chinese students abroad do not seem to make a fine distinction between whether the correspondents have permanent residency status or the inclination to become citizens of their host countries. Therefore, the following literature review is primarily based on research done on international Chinese students, or transnational Chinese students as Fong defined it, for the purpose of describing the larger sociocultural forces and challenges that commonly define their experiences abroad.

[58] This part of literature review was done in 2017, in preparation from the dissertation data collection between the Fall of 2017 and Spring of 2018. Even though numerous studies on Chinese students abroad or transnational Chinese students may have been published in the past few years, during the time of my data analysis, I made a choice not to do a major update on this original literature review on transnational Chinese students and their critical thinking. The rationale is that this original literature review demonstrates the knowledge context in which I began the study, and this knowledge context shaped my initial understanding about the study, interview questions, and later surprises and new understanding I gained from this fast changing population during the actual research.

In addition, the following literature review on transitional Chinese students' experiences with critical thinking also draws upon a larger scope—including studies on Chinese students' critical thinking skills in China (to provide relevant background information about students' exposure of critical thinking in China) and on undergraduate and graduate Chinese students' challenges with critical thinking. Even though the dissertation project focuses on transnational Chinese students in the U.S., the current literature review also draws from studies published outside of the U.S., such as England, Australia, Canada, and other countries where large numbers of international students travel for higher education and where critical thinking is taught as an important element of university learning. Although significant differences may exist, for example, between the education system of England and the U.S. and between undergraduate and graduate Chinese students studying abroad, a review of relevant literature from a broader scope may help to gather relevant background information and common experiences of the student group this dissertation aims to examine.

(2) Statistics & Trend

The number of students from China studying abroad has increased exponentially over the past two decades, making China the largest sender of outbound students and a major driver in the global education market. The Chinese Ministry of Education reported that about 523,7000[59] Chinese students went abroad in 2015, of which 97% were self-funded (International Consultants of Education and Fairs Monitor, 2016). The United States, Australia, United Kingdom, Japan,

[59] According to UNESCO Statistics 2016, the "total outbound internationally mobile tertiary students studying abroad" is 800,701.

Canada, and Korea are the top six destinations for Chinese students, with the population going to the U.S. about three times as high as the next three top destinations and six times as high as the last two (UNESCO Statistics, 2016). In the United States, according to the *Open Doors* 2016 report (Institute of International Education), China has been the top sending country of international students since 2009. A total of 328,547 students from mainland China were studying in the United States for higher education in 2015/16, constituting 31.5 % of its entire international student population. In addition, U.S. Department of Commerce data indicated that Chinese students contributed $11.43 billion to the U.S. economy in 2015.

Although the number of outbound Chinese students was at a record high in 2015, so was the number of inbound students going back to China. According to the Chinese Ministry of Education, a total of 409,100 or 70 to 80% of outbound students returned to China in 2015, because of the increasingly attractive Chinese job market. In addition, although the 2015 outbound statistics indicated a 13.9% increase over 2014 levels, it also marked "a second consecutive year—after 11.1% growth in 2014—of growth levels below the 19.1% average annual growth over the past four years" (ICEF Monitor, 2016). In the U.S. in particular, the rate of increase of international Chinese students in 2015 was even lower, at about 8% (IIE, 2016). In other words, even though China is still the largest, the annual rate of increase is slowing down.[60]

What this new trend may suggest about the future development of Chinese students in the U.S. is still difficult to predict with certainty. On the one hand, despite the slowing growth

[60] In fact, even though the total student population from China is about three times higher than of Indian students in the United States, India has significantly outpaced China in terms of growth rate for the past two years. According to IIE, there was 8.1 growth rate from China vs. 24.9 from India in 2015/16, though Indian student population concentrated at the graduate level and in optional practical training or OPT.

rate in the two recent years (i.e., 2014 and 2015), the number of Chinese students studying abroad in the U.S. is still expected to keep rising for some time. On the one hand, China has been heavily investing and expanding its higher education as well as aggressively internationalizing and recruiting foreign students to study in China. According to the IIE data, China is now the third top hosting country for international students around the world, attracting about 10% of the total 4.1 million international students around the world in 2016 (in comparison to the top two: 25% by the U.S. and 12 % by the U.K.). By contrast, due to federal budget cuts on education and corporatization of the higher education in the recent decades, American colleges and universities have become increasingly dependent on international students as a major source of revenue to offset budgetary challenges (Abelmann & Kang, 2014). Yet in the midst of an increasing financial dependency and rising competition in the international education market as countries compete with one another for a larger share of this lucrative exchange, U.S. higher education is offering uneven services to its international students. A growing proportion of Chinese students are dissatisfied with their host institutions that fail to provide a quality education but use them as "cash cows." Unless American universities "develop constructs and metaphors that are consistent with this highly flexible and rapidly transforming market" (p. 393), it might be in danger of losing its dominance over the global higher education market.

2. Aspirations and Challenges Abroad

(1) A Generation "born and raised for the neoliberal global system"

Numerous factors have contributed to this globally mobile Chinese generation traveling across educational, national, and cultural borders in pursuit of education. For example, rapid

economic development and extensive international trade built a fast rising middle class with robust spending power. Due to China's one-child policy (1979-2015), however, each urban Chinese family was permitted to have only one child, resulting in a large amount of financial support Chinese parents have been able to invest into their children's future. In addition, Chinese people have developed great veneration for education since ancient times; with the intense meritocracy of the Chinese educational system and fierce competition for its top universities, many students and their parents with increasing financial means began to seek other possibilities for higher education—abroad. Furthermore, the desirability of an overseas degree has been further bolstered by its high demands in the Chinese market and by the attractive recruitment packaging from institutions abroad. Therefore, we have witnessed the exponential increase in Chinese youths going abroad for education in the recent decade (Heng, 2016).

In *Paradise Redefined: Transnational Chinese Students and the Quest for Flexible Citizenship in the Developed World* (2011), Vanessa Fong called this new generation of globe-trotting Chinese singletons: "Born and raised to rise to the top of the global neoliberal system" (p. 142). By "global neoliberal system," Fong borrowed Immanuel Wallerstein's conceptualization and described it as:

> … the twenty-first century version of the capitalism world system… [that] dominated the global economy from the sixteenth to the twentieth century and was based on an international division of labor in which core regions dominated by exchanging expensive professional services and manufactured good for cheap labor and raw materials from peripheral regions. As the dominant engine of a twenty-first century world with increasingly rapid and efficient transportation and communication technologies, the global neoliberal system resembles the capitalist world system that gave birth to it but locates itself more in the bodies of disciplined, deterritorializable individuals than in particular regions or nation-states. (p. 21)

Influenced by media images of the developed countries as *paradise* with pristine beaches and educated people, Fong asserted that Chinese youths born under the one-child policy grew up desiring to be part of this world or the idea of "flexible world citizenship." That is, a kind of economic, social, and/or political citizenship that would provide them with security, prestige, and flexibility to enjoy the best of both worlds: China and the West. It is a dream created by the global neoliberal system, where one can live in any part of the world—such as China or another developing country--yet still enjoy the privileges of the developed world, so long as one has the desired skills, financial and social capital, and passports. According to Fong, this desire to be at the top of the global economy exist not only at the personal level—shared among individual students, but also at the social level—supported by their parents and at the national level—espoused by the Chinese government eager to modernize and become a global power. Under extreme pressure to succeed and secure a better future for themselves, their family, and to some extent their country, Chinese students make the education "pilgrimage" to further their education and to realize their transnational dreams.

Yet in tracking over a decade (1997-2010) the social and economic development of more than 250[61] Chinese students who went to various developed countries, Fong found that the reality of their transnational experiences is often quite harsh. It is not uncommon for these students to experience cultural shock, social isolation, and ambivalence toward their host countries and institutions that often do not provide adequate services and support for them to succeed. Their disappointment and stress level is compounded by another unanticipated fact:

[61] Fong's first survey conducted in 1999 had 2,273 respondents; by the time of her 2008-2010 survey, 253 respondents remained (p.33-35).

the gradual erosion of their social and cultural citizenship in China, resulting additional anxiety about losing "their opportunities, social networks, social competencies, and the ability to reach the life-course milestones necessary for a respectable Chinese adulthood that would enable them to live happily in China (p. 203). In other words, despite these students' strong determination and high hopes as they move from the "global periphery" to the "global center", many "ended up floating between the margins of China and the developed world" instead (p. 205).

(2) Social Challenges

Although Fong's ethnographic study was based on an older generation of Chinese students, born between the late 70s to mid 80s,[62] recent studies still confirm that many of the experiences of social, language, and academic marginalization presented in her work still apply to the younger generation of students born after the mid 80s. For example, social isolation in host countries remains a tough challenge for Chinese students. According to Spencer-Oatey, Dauber, Jing & Wang (2016), Chinese students in the U.K. experienced significantly more difficulty making friends outside their ethnic group than students from other nationalities. Perceived barriers contributing to this challenge are language proficiency, different social habits and cultural references, and a lack of opportunities and motivation for cross-cultural interaction among domestic as well as Chinese students. While the authors used the concept of "cultural distance"—i.e. cultural similarity and differences—to explain the distant host-guest relationship

[62] According to Fong, her respondents' age ranged from 24 to 31 in 2010, so they were born between 1979 to 1986 (p. 33).

between domestic and Chinese students, they also discovered from respondents that the sizable population itself can create motivational obstacles for Chinese students to leave their comfort zone and associate with students of other groups.

Different perspectives have been proposed about how the current size of the Chinese student population affect this group's overall adjustment in host countries. On the one hand, Chen & Ross (2015) reported that "Chinese educational enclaves," which emerged due to the increasing population, have provided crucial information and social capital for Chinese students to achieve academic success in a foreign environment. Debunking the common perception that these student communities function as closed and exclusionary, the authors concluded that social activities and academic mentoring provided within these enclaves actually help Chinese students adapt to and even change their host institutions. They further contended that "if there is a problem, it occurs not within the enclave itself, but in the inability of the institution and the enclave to find common ground and in turn create a mutually beneficial relationship between the 'Chinese network' and 'whatever is considered to be the greater campus community" (p. 157).

On the other hand, these well-established and self-sufficient enclaves may support Chinese students so well that they have less incentive to communicate and connect with domestic and other international students. Moreover, a close dependency within the group and the lack of interaction between groups may further stereotypical images of Chinese students as "ethnically suspected and inassimilable" in the host countries. Abelmann & Kang (2014) argued that the current media discourse on Chinese students in the U.S. suggests "two prevailing images—the allure of the China market and the threat of 'Yellow Peril'" (p. 389). They noted that

even though the racist term itself is not currently in use, the actual content stereotyping the Chinese such as “an incommensurable other” with “radical strangeness” continue to manifest in some of the newer perceptions of Chinese students as the frenzied educational exchanges are becoming increasingly fraught (p. 383). In other words, while the large Chinese student population with its increasingly well-developed enclaves may lead to more of such media discourse, simplified and stereotypical perspective transmitted to the public through the media may further intensify the marginalization and isolation of Chinese students’ experiences abroad.

In the aggregate, these demonstrations of Chinese students’ social isolation and dissatisfaction abroad are troubling, because studies have shown that in general students’ academic performance is affected by their sense of belonging to the university (Glass & Westmont, 2014; Tinto, 1993). The lack of sense of acceptance and affiliation with their host institutions and countries can negatively impact Chinese students’ academic success, overall development, and the future trend of a globalized higher education sector. For example, according to Crawford & Wang’s (2015) study of Chinese undergraduate business and finance majors at a U.K. university, their academic performance fell significantly behind their domestic counterparts over the course of three or four years, even though they began with a significantly higher academic attainment in the first year. Surprisingly, the authors also found that these Chinese students’ prior level of language proficiency (which was high), gender, and prior academic qualification did not make a difference in terms of how they performed academically. Crawford & Wang claimed that their findings accord with other studies reporting that white domestic students perform consistently better than ethnic minority students after relevant variables, such as prior academic qualification and demographics, were controlled (Naylor &

Smith, 2014; Richardson, 2008). Therefore, scholars have attributed this consistent under-performance among international and minority students to the possible exclusionary attitudes from teachers and students of the host institutions (Osler, 199; Gram et al., 2013) and/or different teaching and assessment styles and learning approaches that might have diminished these students' self-confidence and sense of belonging to the university community (Cassidy, 2014; Sun & Richardson, 2012).

(3) Academic Challenges

Even though social integration and inclusion constitute a significant part of students' confidence, wellbeing, and educational success, more studies on international Chinese students have focused on their academic performance and adjustment. This is not only because educational attainment is the immediate or primary goal for most Chinese students abroad, but also because the tremendous difficulties presented for them as they transition to different language and education systems abroad. Common academic challenges reported in the literature are: (1) language barrier which impacts efficiency in reading, writing, and communication; (2) tough balance between work and play due to high pressure to study all the time in order to make the most out of their expansive educational investment; (3) unfamiliar teaching styles and evaluation criteria that are not often explicitly explained and thoroughly understood; (4) learning style difference between the typical Chinese model—based on rote learning and memorization—and the arguably characteristic Western model—based on critical thinking, active classroom participation, and problem-based learning (Gram et al., 2015; Heng, 2016; Wu, 2015).

While not necessarily contradicting to Crawford & Wang's findings that international Chinese students' academic attainment on average may fall below their domestic peers, other studies offer a more sanguine picture about the adaptability and agency of Chinese students. Aiming to debunk what they perceive as an existing deficit and stereotypical perspective of Chinese students as passive rote learners, as unwilling to participate in discussion, and as uninterested in socializing with the larger campus community (Rubel & Zhang, 2013), a number of recent studies highlighted how Chinese students are motivated and successful in adapting to the new language, educational culture, social norms of their host environment. For example, Kingston & Forland (2008) found that students from China and other East Asian countries have become more similar to their Western peers in terms of valuing their voices and opinions, of being independent and reflective thinkers (p. 214). Although trained in a test-centered educational culture, these students, after arriving at the host countries, also prefer essays instead of timed examination, and in-depth written feedback rather than numerical evaluation. Even though they admit shying away from verbal communication in class because of perceived language barriers, nearly all claim to enjoy group work (p. 215). Kingston & Forland concluded that in order to improve international students' educational outcomes and retention in the U.K., the British higher educational model needs to move from a "colonial hangover"[63] or deficit model for international students to a more explicit and "interculturally receptive" approach.

[63] *Colonial hangover* refers to the idea that "the 'cultural' providers' (i.e., universities) allow those alien to the culture to visit, learn from, and ultimately return home invigorated from this new cultural experience" (Kingston & Forland, 2003, p. 209).

Likewise, Gram et al. (2008) confirmed the advantage of group learning in a study of Chinese students' experiences with problem-based learning or PBL[64] in Denmark. The authors claimed that even though international Chinese students in the PBL program did experience "confusion and frustration" about the new learning model, these feelings were *temporary* (p. 770). That is, through the project-oriented nature of PBL where intensive academic and social interactions among students are required, Chinese students gain better communication and critical thinking abilities and a sense of belonging to the host educational community. The authors also ascribed Chinese students' success to their curiosity, enthusiasm and "impressive levels of patience and diligence" (p. 770).

These intellectual and character virtues were also highlighted in two other recent studies to explain Chinese students' agency and flexibility in adjusting to educational systems abroad. For example, adopting the constructivist developmental perspective which emphasizes the dynamic between students' learning approach and learning environment, Wu (2015) found that Chinese students' learning beliefs, strategies, and behaviors change over time in a new educational environment. That is, after the initial period where they "are likely to deal with learning conflicts using a range of preexisting knowledge and skills" learned in China (p. 764), they reflectively and selectively adopt the norms and skills of their host environment. In a study of Chinese undergraduates (freshmen and sophomores) in the United States, Heng (2016) also confirmed the temporariness of the major academic challenges that Chinese students face abroad. Using a "hybridized sociocultural framework" that emphasizes the mutual influence of

[64] *Problem-based learning* emphasizes on critical thinking and active and collaborative participation. It is "student-directed (organized, managed, and controlled by the students themselves), interdisciplinary, and often group-organized" (Gram et al., 2008, p. 764).

sociocultural structure and individual agency, Heng found that Chinese students' learning behavior, attitude, and strategy change over time, demonstrating their "agency in actively making sense of their learning and lives" (p. 12). Her report claimed that by the end of a year-long study, the majority of students in the study were able to improve or overcome most of their academic challenges, such as achieving oral and written communication competency, understanding pedagogical and assessment expectation, grasping academic-related cultural reference, and adapting to "Westerner" thinking (i.e. logical and critical thinking).

(4) Conclusion

In summary, opinions diverge among scholars on how well students from mainland China are doing abroad in developed countries or the "global center." While a large body of literature indicates that Chinese students may be having a difficult time adjusting and achieving in their new educational environment, more recent studies highlight the urgency to be critical of the deficit or colonial perspectives prevalent in the media as well as in academia and to understand international Chinese students' experiences without essentializing them as the same or static. The new academic or theoretical perspective is vitally important, because it helps to make important shifts in terms of the kind of research questions, standpoints, and pedagogical recommendations that are to be proposed. We see more nuanced, culturally sensitive questions are being asked, more student experiences and perspectives are being considered, and more inclusive and communicative pedagogies are being advocated.

While the goal of debunking simplified stereotypes and misguided interpretations of international Chinese students is important, especially given the precipitous rise of Chinese

student population around the world, it also seems important that researchers maintain their academic neutrality when designing their research and presenting their findings. A theoretical model that highlights human agency "in improvising, interacting, or contesting the values, beliefs, and behavior associated with different sociocultural contexts" (Heng, 2016), for example, may invariably find or confirm Chinese students' agency and success, perhaps at the expense of understanding their frustration and ambivalence that other studies have reported. Therefore, as scholars have already pointed out, more in-depth studies of Chinese students' actual experiences with a holistic framework are needed for understanding the larger sociocultural forces and personal factors that are shaping this fast-growing and fast-changing population and global phenomenon (Tian & Low, 2011; Heng, 2016).

3. Transnational Chinese Students' Experiences with Critical Thinking

(1) Critical thinking as a Paradigmatic Challenge for Transnational Chinese Students

In many ways, critical thinking represents an important and "paradigmatic" case of the existing tension or gap between academic norms espoused by developed countries in the West and the different educational preparation and cultural orientation that have shaped international students from Asia, such as mainland China (Kutieleh & Egege, 2004). As scholars and educators of international Chinese students commonly acknowledge, among the numerous challenges these students face, critical thinking is a tougher one for them to grasp and master (Heng, 2016; Tian & Low, 2011; O'Sullivan & Guo, 2010; Wu, 2015). Yet the ability to think critically is also closely related to other challenges that have been written on international Chinese, such as active class discussion and college-level writing. This is because critical thinking is at the core of active

classroom engagement and argument construction; at the same time, the process of open communication and clear writing also fosters the development of critical thinking. As critical thinking is manifested in various ways that Chinese students encounter while studying abroad, examining their experiences with critical thinking encompasses many of the other academic challenges they face.

Moreover, as critical thinking has been perceived as an essential feature of universities and, to an extent, of societies of the West, the reported challenges international Chinese students experience with critical thinking point to deeper questions that scholars have been debating heatedly for some time: *Is* critical thinking *universal or culturally specific? If it is not universal, as many seems to argue, then does the teaching of* critical thinking *as an academic requirement and imposition amount to "conceptual colonialism"* (Biggs, 1997; Kutieleh & Egege, 2004). In other words, the case of critical thinking and transnational Chinese students presents not only theoretical puzzles but also pedagogical and ethical concerns for comparative and international education.

Furthermore, putting aside these intriguing and important theoretical, pedagogical, and ethical questions for just a moment, critical thinking represents a paradigmatic challenge for Chinese students abroad because learning to think critically highlights the complex and simultaneously intellectual as well as social adjustment as they move from one socio-political and educational environment to another that is significantly different in many ways. Adopting Perry's developmental psychology model, it is not difficult to see how learning to think critically or to change one's epistemological positioning, may entail questioning and realigning one's fundamental assumptions about knowledge, authority, and the self. As the current Chinese

education system is still largely state-controlled, where students are required to demonstrate a deferential attitude and to memorize Party ideologies, the core values of critical thinking seem to stand at odds with those fostered in Chinese education. Therefore, the prospect of experiencing intense cognitive dissonance, cultural shock, and existential crisis seems to be great for transnational Chinese students. In essence, if they are to take critical thinking seriously, it could mean to take upon themselves the tremendous task of resolving in some ways the divergent views of knowing and being in an autocratic vs. democratic political system, if not also of the so-called East vs. West. Moreover, the potential threat of marginalization and friction with one's family and society as a result of establishing different knowledge and beliefs through critical examination can be a daunting reality and constraint for Chinese students, especially those (the majority) who intend to return to China.

Therefore, an examination of transnational Chinese students' experiences with critical thinking becomes a paradigmatic case for understanding critical thinking from a cross-cultural perspective as well. It's perhaps much easier to see from a cross-cultural perspective, that to think critically is much more than a cognitive experience or rational exercise, as the dominant perspective of critical thinking has rendered it.

(2a) Is Critical Thinking Universal or Culturally Specific? Universal, Almost

One way to answer this much-contested question about the universality of critical thinking is to examine whether critical thinking also exists in the Chinese culture. According to Paton (2011), many of the elements of what we perceive as critical thinking in the West can be found in traditional Chinese thoughts. For example, he claimed that Mozi, an ancient Chinese

philosopher, had emphasized self-reflection and "reason as the answer to the problems of humanity"—much like the Greek philosophers; moreover, Mozi had an elaborate system of knowledge divided into four categories: discourse,[65] ethics, science, and argumentation (p. 28). In addition, Paton argued that if critical thinking "is neither more or less than scientific thinking" as some scholars (e.g. Crombie, 1994) have argued, then traditional Chinese science displayed almost all of the elements of Western science (p. 29). This claim about the similarities between traditional Chinese science and Western science is also supported by Needham's seminal work *Science and Civilization in China* (1959, 1962).

Paton further supported his claim that critical thinking is not culturally specific but universal by conducting an empirical study of Chinese university students' perceptions of critical thinking. According to his study, Chinese undergraduates and postgraduates' understandings of critical thinking are "strikingly" similar to those of international Chinese students educated abroad. They not only understand critical thinking as a truth-seeking and creative enterprise that requires independent reasoning, but also deem it as important for better knowledge production in academia as well as for "character building" in their daily life (p. 31-32). Therefore, Paton concluded that while critical thinking is "part of the framework of humanity," English as *lingua franca* is not. In other words, it is English as the medium in which critical thinking is conveyed in the West that is unfamiliar and challenging for Chinese students, not the thinking itself per se (p. 37).

[65] Paton explained Mozi's "discourse" as "the knowledge of how to connect names and objects" (p. 28), which seems to fall in to the purview of analytical philosophy in the West.

In an extensive review of existing literatures on Chinese students' performance of critical thinking, Tian & Low (2011) concurred with Paton that critical thinking is not unique to Western cultures but can be found in China. Citing works of other scholars (Jin & Cortazzi, 2006; Kim, 2003), they stated that other schools of Chinese thought, such as Confucianism that had dominated traditional China "effectively advocated critical thinking by emphasizing reflective thinking, inquiring, deep thinking, and equality between the students and the teachers" in its philosophy (p. 67). While unlike Paton, Tian & Low perceived the "lack (or rather do not demonstrate) critical thinking skills" as an apparent issue among Chinese students abroad—as numerous other studies reported, they also concluded that the key factors affecting these students' critical thinking lies not in culture or cultural differences between the East and West. Rather, they believed primary factors that are affecting students' critical thinking performance abroad are students' prior education, which include relevant subject knowledge and language proficiency as Paton's article had reported, and the lack of clear and explicit explanation on critical thinking as it is considered self-evidence in most academic contexts abroad.

Even though Tian & Low supported Paton's analysis for the most part, they also raised an incisive question to Paton's claim; namely, to what extent the various schools of traditional Chinese thought, whether Confucianism or Mohism, are relevant to the current Chinese education system within which Chinese students learn. This is because while elements of traditional thought may have penetrated into the everyday life of the Chinese people and their perceptions of education, e.g. the veneration for learning as espoused by Confucius, the current Chinese education system is largely state-controlled with a test-driven approach and hierarchical relationship between teachers and students. To address their proposed challenge, Tian & Low

drew on Holliday's (1999) concepts of "large culture" and "small culture" to better delineate the contextual forces that shape Chinese students' grasping of critical thinking. As a result, the traditional Chinese culture or various schools of traditional Chinese thought that Paton mentioned is categorized as "large culture"—that operates at the national level and is perceived as "unchanging and homogenous," and the school or classroom contexts in which Chinese students develop their knowledge and thinking skills are considered "small culture"—that is "less normative and more flexible" and is perceived have immediate impact on how students learn. In other words, while the larger Chinese culture may demonstrate elements of critical thinking as Paton claimed, the smaller culture where students receive their education may operate on a different set of values and approaches, such as memorization-oriented learning, "heavy workload, surface assessment demands or over-lecturing" (p. 69).

View from the "small culture,"[66] the educational environment in which Chinese students learn in mainland China fosters not so much equality and independence that are the bases for critical thinking, but hierarchical thinking and deference for authority that may inhibit critical thinking. Like Paton (2011) who did not explore deeper on how Chinese students' apparent

[66] I would add that what counts as "large culture" may contain multiple forces some of which are contrary to another, such as certain Chinese philosophical traditions—notably Chuang Tze's philosophy and arguably aspects of Confucius' that emphasize on criticality and freedom—and the socio-political culture of China shaped by a long empirical history of centralized government. Moreover, even within the "small culture" of the classroom contain even smaller cultural units, such as students' different familial cultures that could have a direct impact on their sense of the self and how they think. Furthermore, as students grow older, they may have more agency in determining what counts as part of their culture or "personal culture," where they could draw resources from the so-called "larger culture" by reading Chuang Tze or Confucius' philosophy and reject the State ideologies imposed in their "small culture" or schools. In other words, while the concepts of "large culture" and "small culture" can be appealing and helpful in delineating the various forces that are operating on Chinese students' learning processes, these theoretical constructs are much more fluid in reality and what counts as external or cultural influences for students may need to be explored individually for a better understanding of the interrelations among the forces and in relation to students' agency.

reticence in questioning authority coexist with critical thinking in Chinese culture—both of which he claimed, Tian & Low also did not provide further analysis on how the significance of respecting "authority" in the Chinese schools, or the so-called "small culture," may affect students' performance of critical thinking. Perhaps the desired relationship between students and authority, whether in the form of teachers, parents, textbooks, and government, fostered at school is a manifestation of the "large culture" that includes not only Confucius' philosophy of education that may espouse critical thinking but also Confucianism, a later development that aimed for extensive political and ideological controls led by a centralized government.

(2b) Critical Thinking as Culturally Specific

Yet one's relationship to authority or one's ability to question and seek for truth in spite of authority or established knowledge claims is foundational to critical thinking, particularly in the conceptualizations of Socrates, Dewey, and others who espouse the liberal arts traditions in the West. Although not explicitly stated in terms of one's relationship to authority, many scholars on the other camp also asserted that critical thinking as taught in Western academia is representative of a particular culture and social practice (Atkin, 1997; Biggs, 1997; Canagarajah, 2002; Paltridge, 2004). It is a cultural tradition, stemmed in Greek philosophy, that valorizes individuality, democracy, and a critical temperament, which differs from a kind of "collectivist" thinking and values espoused by cultures in the East (Biggs, 1997; Kutilehe & Egege, 2004; Lloyd, 1996).

A few studies written or co-authored by Chinese-born scholars reflecting on their educational experiences in China and in the West presented a similar but more nuanced view

about existing cultural and educational differences. For example, writing about her experience at Harvard as a graduate student who had just arrived from China, Cheng (2012) described how shocked she had felt in American classrooms dominated by lively and open-ended discussions among students and teachers. It seemed that almost everything she had been taught in China was polar opposite to what she was experiencing in the U.S. For example, being a "good student" in China entails "accepting the teacher's suggestions and requests without much questioning or contradicting… and listening quietly and attentively in class;" by contrast, university students in America are expected to actively participate in class discussions and "put forward their own opinions by raising hands or simply cutting into the professor's talk" (p. 5) In other words, not only students' learning styles in these two countries differ, but their relationship with teachers demonstrate different attitudes toward authority. Moreover, having grown up with an understanding that learning is about understanding and absorbing correct answers and interpretations, she was overwhelmed by the sudden experience of freedom, uncertainty, and possibility that maybe there isn't one correct answer—something that her American peers was taking for granted.

To explain the vast educational differences she experienced, Cheng delved into the cultural differences between the U.S. and China. Describing Chinese culture as undoubtedly a shame culture, as the concept of 'face' is at the core", Cheng argued that it (the shame culture in China) is shaped by the idealized Confucian image of "a perfect and flawless person" (p. 9) Moreover, she asserted that deeply ingrained in this idealized notion of the self, Chinese people are not only fearful of making mistakes and cautious about how they present themselves in the public but also highly judgmental and critical (as in harsh criticism) of others'

shortcomings. It remains a question that to what extent Cheng's account of her personal experience of China and the Chinese education system is representative of other Chinese students' in general, particularly of this current generation that did not grow up under the shadow of post-Cultural Revolution but under the rhetoric of neoliberal global economy.

In her conclusion, Cheng commented that the differences between American and Chinese education are not "as dichotomous as they appear to be" at first to her; moreover, she credited the virtues of her Chinese education in terms of the confidence and certainty she used to feel about acquiring a clearly-defined body of knowledge, the benefit of memorization that enhanced learning, and the emphasis on self-cultivation and moral virtue in Chinese educational thought. While much may be gained from the Chinese educational system, Cheng's narrative suggested possible displacement and cultural shift--in terms of one's perception of the self, of one's relations with others, of knowledge and authority—embedded in their cross-cultural educational experiences. Moreover, her account suggested that elements of Chinese culture, e.g. its shame-based social culture and/or autocratic political culture, may condition people to feel restrained about expressing themselves freely and openly in public and inhibit their (demonstration of) critical thinking.

Another Chinese-born scholar from Canada, in a co-authored article, also highlighted the cultural shift that is embedded in the learning of critical thinking for Chinese students abroad (O'Sullivan & Guo, 2011). Guo described Chinese thinking is grounded on the notion of "harmony," which "implies that the individual is primarily a component of a collective and the unity of this collective is the most important concern" (p. 69). Therefore, not only is there also a "fundamental cultural difference underlying teaching and learning" between China and the West

for Guo, but also the learning of critical thinking which emphasizes independence and individuality entails a fundamental shift of one's belief system—much in accord with Cheng's assertions. These differences in terms of pedagogy and thinking styles are also confirmed by the more recent studies, even though their aims were to debunk stereotypes about Chinese learners as being different (and therefore "deficit) by highlighting their successful adaptability to different sociocultural contexts (Wu, 2015; Heng, 2016).

Although concurring that critical thinking is a cultural construct "developed in the Euro-western world," Guo distinguished critical thinking in the logical, technical sense and critical thinking as taught in the "strong" Socratic sense or in Critical Pedagogy based on Critical Theory and Freire's philosophy of education. This is an important distinction for her, because she claimed while critical thinking in the first sense is taught in China, critical thinking in the later senses are not. In other words, neither critical thinking as questioning and challenging others' claims, including those of from the dominant position or the authority, nor critical thinking as examining one's own values or worldview is taught or encouraged in China, because "[t]he authoritarian political and learning contexts in China themselves resist the development of student autonomous thinking" (p. 56). Moreover, students tend to view critical thinking as "negative thinking," as openly challenging others, especially those in authority, is considered disgracing and offensive and thus should be avoided. On the other hand, critical thinking as "logical analysis and consistency in reading and writing" is taught even in "pre-university education in China, particularly in mathematics, language arts, science, and politics" (p. 54). What may be thought-provoking for critical thinking theorists and educators in the West, given how the dominant view of critical thinking is defined, Guo reported that this type of critical

thinking —logical reasoning skills—is not “explicitly called critical thinking as it is in the Western context” (p. 55). It is this type of critical thinking or logical reasoning, or by the Chinese standard non- critical thinking, that is taught as an important skill at the secondary and tertiary levels.

In summary, the kind of critical thinking education that prompt intense cultural shift as described by Cheng and Guo is of a particular kind—one that entails open-minded intellectual discourse, equal and democratic association, and freedom to express and think for oneself. While this “strong” critical thinking may still be largely espoused in Western universities, critical thinking as logical reasoning or “weak” critical thinking is no longer specific to Western education today but promoted in Chinese schools and universities as well. Therefore, if Chinese students encounter critical thinking in the “weak” sense while studying abroad, particularly if there are math and science majors, they may not experience as much of a cultural shift or dissonance; if they are being instructed to think critically in the “strong” sense or to challenge dominant ideas or authority, they may feel “overwhelmed” and “displaced” (Cheng, 2012). They may embrace it, i.e. critical thinking in the “strong” sense(s), immediately or eventually--as Guo suggested that to think critically and actively require practice, disposition, and time. In either case, what they experience would be “nothing less than identity and cultural transformation” (O’Sullivan & Guo, 2011, p. 69) They may also resist it or learn it selectively, that is “only so far as it suits their needs and interests” (Tian & Low, 2011, p. 70). In this case, they may be able to preserve their identities and worldviews, but what long-term future would such choice bring for them in a China that is rapidly changing or elsewhere that is increasingly globalized with challenges and possibilities that, as Anthony Giddens has been asserting, no one knows for certain?

(3a) Chinese Students' Educational Background vis-à-vis Critical Thinking

Guo's claim that some form of critical thinking is being taught in China is confirmed in other studies. For example, Dong (2015) reported that critical thinking have been taught in China since the 1990s, with a growing demand for it in Chinese higher education since 2010s. While national conferences on critical thinking have been held, books on critical thinking have been published or translated, and some critical thinking courses have taught critical thinking in the "strong" sense(s), e.g. Socratic dialogue and problem-based learning, Dong also stated that the percentage of universities that offer critical thinking courses is low, "50 of more than 2,100 higher education institutions" (p. 354). Moreover, most of the so-called critical thinking courses offered in fact teach logic and are directed primarily at philosophy students. Dong concluded that despite growing interests in critical thinking in the Chinese higher education sector, actual adoption of critical thinking is limited in terms of quantity (number of courses and institutions) as well as quality (the narrow range of critical thinking that is being taught).

This picture of the recent state of critical thinking education in China is complicated by two other studies testing directly or indirectly Chinese undergraduates' critical thinking level. One is a set of two older studies examining Chinese university students' epistemological development, which is closely related to developing critical thinking skills as Kurfiss (1988) argued from the cognitive-developmental perspective. Using Perry's approach[67] (more specifically, Zhang's own evaluation model "ZCDI"[68]), Zhang (1999 & 2001) conducted two large-scale

[67] According to Perry's cognitive psychology model (1970), the progression of reasoning or epistemological positions of (American) college students typically move from dualism to relativism to commitment.

[68] According to Zhang (1999), her inventory (ZCDI) included 120 questions of "four content areas (education, interpersonal relationships, career choice, and life responsibility)," designed to test three types of reasoning defined by Perry: dualism, relativism, and commitment in relativism (p. 428). Zhang's inventory criteria demonstrated an assumption that one's epistemological positions affect the perceptions and choices one makes in learning,

quantitative studies and reported that Chinese undergraduates demonstrate a reverse cognitive development pattern: their epistemological stance move from a more relativist position (a later developmental stage in Perry's scheme) to a more dualistic position (an earlier stage) over the course of their college education. This may suggest that college students in China in the 90s may think more critically or open to different perspectives when they enter the universities than when they graduate; their critical thinking skills do not improve but deteriorate over the course of their undergraduate years in China. Zhang attributed to this developmental reversal to the rigid institutional setup and curriculum design that inhibited university students' interactions with others outside of their particular major or class.

Zhang's claim is in some ways confirmed by another, more recent study that became a media sensation when it was publicized through a New York Times article "Study Finds Chinese Students Excel in Critical Thinking. Until College" (Hernandez, 2016). The study conducted by Prashant Loyalka, a Stanford scholar, examined cross-nationally critical thinking skills of college students majoring computer science and engineering in China, U.S., and Russia. It reported that Chinese in-coming freshmen's critical thinking skills in these majors are about two to three times higher than their American and Russian counterparts. However, while American and Russian college students' make significant improvement in critical thinking skills after two years of college education, Chinese students demonstrate "virtually no improvement." While a full report of this study has not yet been published,[69] nor a clear definition or criteria of "critical thinking skills" [70]

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interpersonal, and intrapersonal dimensions. In comparison to a narrow and technical approach to teaching and evaluating critical thinking as argumentations, Zhang's cognitive model suggested also a broader scope with personal and social relevance in which critical thinking can be evaluated.

[69] at least not to the author's knowledge, after a search into the Stanford faculty's website

[70] A definition of critical thinking is stated in another short interview article published at Stanford News "Critical thinking skills are typically defined as the ability to make clear and well-reasoned analyses and evaluations of

used in the study is provided by the author, the study and its preliminary results raised questions about the quality of Chinese higher education, students' motivation towards learning after the gruesome years of preparation for college. Moreover, the article also indicated some form of critical thinking is not only taught rigorously and successfully, but also early, at the secondary level.

Although the studies listed above on the teaching and learning of critical thinking in China may not necessarily contradict each other, as all raised common concerns about the quality of its critical thinking instruction as well as its education in general, they also suggested that how critical thinking is defined and evaluated may impact the conclusions about the state of critical thinking education in China. On the one hand, if critical thinking is defined as logical reasoning skills, then as Dong (2015) and others reported that it is implemented in Chinese higher education with uneven results, or as Loyalka's study claimed that it is taught successfully at the secondary level but not at the tertiary level. On the other hand, if critical thinking is defined in a more holistic sense (i.e. as something manifested in the way in which one relate to knowledge, to others, and to the self) from a developmental cognitive approach as Zhang's model demonstrated or defined in the "strong" senses as Guo mentioned, then critical thinking may not be generally espoused in the Chinese education system.

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information" (Parker, 2016). This general definition is, however, not drawn as a direct quote from the Stanford scholar who conducted the research but as a statement given by the article's author.

(3b) Chinese Education System: A Few Pertinent Characteristics

Although the topic of "Chinese education" is vast and beyond the scope of this dissertation project, a few of its general characteristics are highlighted below to shed light on the educational background of Chinese students and the factors that may shape their responses to critical thinking abroad. First, a greater emphasis on memorization and rote learning is often characterized about the Chinese education, even though some level of memorization as a learning technique is probably universal in all educational systems. A "good student" in China is someone who accepts listens to teachers' instructions attentively, and who memorizes textbook answers accurately, and who behaves in accord with the expectations of her peers and teachers (Cheng, 2012). The educational difference between China and the West, particularly in terms of learning styles, is indeed obvious, despite globalization influences and internationalization of education in the recent decades. Embedded within the learning style difference—memorization or discussion, as Cheng put it—is a divergent view not only about cognitive approaches to knowledge dissemination and construction but also about the so-called non-cognitive aspects of one's ability to define and express oneself and differences.

While memorization and rote learning have been largely casted negatively as "surface learning" (Wang & Moore, 2007) in the West, there are also other scholars who challenged this understanding as a misinterpretation of another philosophical and educational tradition (Jones, 2005; Watkins & Biggs, 2001). According to Gram et al. (2015), Chinese education stems from Confucian philosophy, in which "the ultimate goal of education is the self-perfection of the individual, and the development toward this goal is understood as the Way (the *dao*) to an ever deepening understanding of oneself and one's role in the world" (p.762-3). It is therefore

believed that reading and memorizing the important classical texts can create “resonance” within the individual, which will eventually guide him/her toward the Way. The purpose of memorization is “to be able to forget the words but hold on the interpretation or ‘effect’ of the words on one’s personality” (p. 763). In other words, as the educational emphasis in traditional China lies not just acquiring knowledge but also character building and spiritual development—in short, the cultivation of a whole person.

This traditional notion of education as a means for self-cultivation and approach of memorization remain strong forces in the contemporary Chinese education system, even though it has gone through a few phases of “westernization” or “modernization”: the adoption of the Soviet model during the Mao era and then the incorporation of a more liberal education and internationalization since the Deng era. Therefore, in understanding Chinese students’ learning behavior abroad, such as a lack of active classroom participation or demonstration of critical thinking, it is important to keep in mind that they come from a different educational environment and tradition, where one’s relationship with education or knowledge differ to in some ways from the Western model. Education for Chinese students in China and abroad may entail not only skills to evaluate, interpret, and create contestable knowledge, but also a route for cultivating “the Way” in oneself.

In addition, memorization does not mean lack of understanding, as it is ideally supported by understanding. When texts are memorized, as they often did in traditional Chinese education, it was with the assumption that they will eventually be understood and become a subconscious part of students’ minds, serving the guide them later in life. Moreover, memorization and rote learning may even facilitate critical thinking to an extent. While memorization helps to build a

repertoire of in-depth content-knowledge, rote learning as persistent practice can train a certain habit of thought that can be useful even for a certain kind of critical thinking. Studies have shown that Chinese students' critical thinking in math and science out performs American students (Tian & Low, 2011), recently confirmed at the pre-college level by the Stanford study. If critical thinking, as in the previous section of literature review, entails knowledge content and skills/habit of thinking, then the Chinese memorization or rote-learning approach may have something to offer to the debate on critical thinking in the English-speaking countries.

Second, the Chinese education system is largely controlled by its one-party State. Even though China has been under a tremendous amount of development and change since the 90s, due to its "open-door" policy and marketization of its economy, the Chinese education system, much like the Chinese media, is still tightly regulated by the ideologies of the Chinese Communist Party (CCP). For example, in the second half of the 20th century and in the interest of building a strong socialist and industrial nation, CCP purged traditional Chinese culture and texts and prioritized math and sciences in the Chinese education system. As China transformed itself as the second-largest economy in the world and an emerging superpower in the 21st century, CCP demonstrates a strong interest in strengthening the Chinese cultural and national identity, by reviving the learning of traditional Chinese texts in schools and funding programs in the humanities and social sciences in higher education.

With regard to critical thinking specifically, government has demonstrated an uneven policy supporting the adoption and implementation of CT at the university level. According to Jin & Cortazzi (2006), while the Chinese Ministry of Education made critical thinking an official requirement for college-level English courses in China by 2001, in 2004 and 2007 its official

documents made no reference to critical thinking. More data and research are needed to find out how political events impact the educational policy on critical thinking and the current official position on critical thinking education in China.

With respect to Chinese students abroad, several recent articles in major Western media reported that the Chinese government under the ambitious leadership of President Xi has in fact tightened its control on students in China and abroad. For example, a New York Times article described that in keeping with Xi's "China Dream" of national revival, the Ministry of Education issued an official order demanding that "patriotic" education should be taught more rigorously in China— so that students would "always follow the party" and be weary of the "dangers of negativity about the history of the party, nation…" (as cited in Buckley, 2016). While the attempt to "proselytize" its youth is not new for CCP, according to the article, the large-scale effort to do so beyond China's border is unprecedented. The explicit policy instruction for oversea Chinese institutions, e.g., Chinese embassies, consulates, and student organizations abroad, is to "establish and maintain correct views of the nation, state and culture" and "constantly enhance their sense of belonging to the Chinese nation" (as cited in Bukley, 2016). Given the large proportion of Chinese students who return China, about 70% to 80% in recent years, the ideological control of the Chinese government may impose significant constraints on many aspects of their education abroad—from what schools to attend (as Chinese government has a list of oversea institutions it does not sponsor for political reasons) to their socialization patterns and perhaps response to critical thinking education.

4. Conclusion: Knowledge Gap

In summary, a review of existing literatures on Chinese students with regard to critical thinking demonstrates numerous social, political, economic, cultural, and personal factors that may impact their learning and performance of critical thinking abroad. These forces can act advantageously or disadvantageously on transnational Chinese students as they transition, temporarily or permanently, to a new way of learning, thinking, and potentially being.

For example, the emphasis on memorization in Chinese education and the resulting deference for canonical texts may render the act of critiquing established texts and ideas unfamiliar and strange for Chinese students abroad; however, as memorization can aid the acquisition of knowledge that is arguably necessary for the demonstration of evidence, their ability to memorize may support the quality of their critical thinking. Moreover, the recent tightening of ideological control of the Chinese government may influence how Chinese students abroad receive critical thinking and the type of critical thinking with which they are willing to engage; however, the tension between the idea of "correct answers" forced upon to them by an autocratic political regime and the "multiple truths" exchanged in an increasingly interactive and globalized world may offer a unique comparative perspective and urgency within which they deem critical thinking as an important transformative force beyond mere argument constructions. Furthermore, while their cultural tradition may condition them to think collectively which can be seen as antithetical to the individualistic attitude connected to critical thinking, their interests in education as a place for self-cultivation or "character building"—also culturally conditioned, may enable them to create a new perspective toward critical thinking that add to the direction of critical thinking education we may envision for the global age. As several

researchers have already noted, that straddling between two different cultures, Chinese or Asian students abroad tend to have a unique response to critical thinking that synthesizes elements from both the East and the West. Perhaps in giving emphasis also to “conciliatory” or “dialogical” reasoning in their practice of critical thinking (Durkin, 2008a & 2008b; Tian & Low, 2011; Paton, 2011), theirs is a cross-cultural version of what Noddings and other postmodern and neo-pragmatist thinkers proposed: a “stronger” critical thinking with the moral purpose of that “can ‘let the Other be,’ as Derrida puts it, in all his or her otherness” (Noddings, 2012, p. 103).

Therefore, the case of transnational Chinese students’ experiences with critical thinking highlights the urgency to examine critical thinking pedagogy and transnational Chinese students’ educational experiences from a hybrid and holistic perspective or framework that take into account the macro as well as micro forces that operate in complex ways on these students’ learning behaviors and outcomes. As some scholars asserted that this fastest growing international student population has been largely misunderstood under a deficit and assimilationist framework, where their differences are perceived through a stereotypical lens as deficient, passive, and intractable. Rather, in their rent studies, transnational Chinese students demonstrate agency and adaptability, indicating the socio-cultural contexts and time factor in their process of shaping their learning approaches. These scholars advocate host countries and institutions to take a more inclusive and intercultural approach to educating transnational Chinese students, and call for future studies to use holistic theoretical frameworks (Heng, 2016; Tian & Low, 2011). While it is important to correct or debunk negative stereotypes in academic literature or in the media about transnational Chinese students, it is also important to present in-depth research on what these students’ experiences are in their fullness.

As Tian & Low (2011) and Gram et al. (2015) pointed out, as the majority of existing studies on Chinese students' critical thinking are quantitative,[71] more in-depth, qualitative analyses using holistic theoretical frameworks are needed to understand students' actual experiences and perspectives with critical thinking. I would add that such qualitative studies using holistic frameworks should also aim to forge a dialogue between transnational Chinese students' experiences and the central debate on critical thinking for a more thorough, intercultural, and democratic approach to critical thinking in the global age. Moreover, in agreement with Heng (2016), I also would add that such in-depth studies should also demonstrate disaggregated data on how personal factors—i.e., gender, socio-economic status,[72] geographic distribution (urban vs. rural), citizenship status, and variety of chosen major—shape students' interaction with critical thinking.

In light of the above review and analysis of literature, I propose in the following a hybrid theoretical framework and a plan for an in-depth qualitative study on transnational Chinese undergraduates' learning and responses to critical thinking as fostered in an American university.

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[71] With these quantitative, as with any evaluation of transnational Chinese students' critical thinking, it's important to know the criteria or type of critical thinking. As Tian & Low point out, in terms of math and science, Chinese students tend to excel, at least up to college. Need to confirm: not much quantitative studies have been done on transnational Chinese students' critical thinking, while most are on students in China…Is it true? If so, why?

[72] The issue of "the displacements of living in two worlds" that exist not only for students when they study abroad but already when they in China, especially if they are from official families that have access to news that ordinary citizens do not have (O'Sullivan & Guo, p. 63-64).

Chapter 3. Theoretical Framework

I. Research Questions

Given the lack of in-depth and holistic study on Chinese students abroad vis-à-vis their critical thinking development and the lack of cross-cultural/intercultural[73] perspective in the conceptualization of critical thinking in the literature, this dissertation proposes a qualitative study using an interdisciplinary framework to explore the following research questions:

Research Question 1 (Empirical)

What are transnational Chinese students' experiences (i.e. learning and applying) and perceptions of critical thinking (e.g. definition, significance, and its universality or culturally specificity)?

Research Question 2 (Analytical)

[73] While "cross-cultural," by definition, refers to "dealing with or offering comparison between two or more different cultures or cultural areas" (Merriam-Webster online), I use "intercultural" in this dissertation to propose greater cultural equality or equal involvement of different cultures for the understanding and construction of important concepts that are becoming global, such as "critical thinking"—what critical thinking is and how it can be taught and practiced. In addition, I also use "culture" in a broad sense, as a body of beliefs and practices that are located not only in particular geopolitical spaces (e.g., Chinese cultures vs. American culture) but also in different knowledge fields (philosophy vs. psychology), at different levels of the knowledge process (theorization vs. application), and among different knowledge groups (teachers vs. students). Therefore, the idea of an "intercultural" perspective advocates inclusivity or bringing together different perspective, challenging in a constructive way the existing hierarchies within cultural or disciplinary knowledge fields, between theory and practice, and teacher and student; by doing so, greater reflexivity and democratization of knowledge may be better achieved and better knowledge for effective problem-solving may be constructed.

Why do these students experience and perceive critical thinking in the way(s) they do? And **how** did critical thinking impact, if at all, these students' learning and overall development?

These two interconnected questions can also be phrased differently as the follows: **What** factors (e.g., sociopolitical, educational, familial, and/or personal) contributed to the way these students perceived and applied critical thinking; vice versa, **what** role did critical thinking play in their academic and personal development as transnational/cross-cultural learners?

Research Question 3 (Conceptual)

In light of the current state of critical thinking education (as reflected in this study of transnational Chinese students), **how** would a reconceptualization of critical thinking in a globalizing late modern age look like, when we incorporate these student's perspectives and experiences?

In other words, as the first two overarching research questions asks for descriptive information about the *what* and analytical information about the *why* and the *how*, the bulk of this dissertation consists of an in-depth qualitative case study of a group of transnational Chinese students in the United States. However, as the extensive literature review on critical thinking in the previous chapter and the third research question listed above indicate, the ultimate goal of the dissertation project, though it may be beyond the scope of this dissertation, is also conceptual and pedagogical—i.e., to reflect critically on the existing practice and pedagogy of critical thinking from a cross-cultural perspective.

II. Theoretical Framework

In response to the research questions, the theoretical framework for this project draws upon theories from three different disciplines—sociology, psychology, and philosophy. More specifically, the hybrid theoretical framework utilizes the following three theories:

First, the sociological theory of "reflexive modernity"—otherwise known as "second modernity," "high modernity," or "late modernity" (Beck, Giddens & Lash, 1994; Giddens, 1991)—supplemented with a related concept of "transitology" in comparative and international education (Cowen, 1996 & 2006), for unveiling structural forces that might be shaping transnational Chinese students' educational aspirations and experiences across two vastly different yet closely connected geopolitical systems in the age of globalization.

Second, the developmental psychology theory of "self-authorship" as first proposed by Robert Kegan (1994) and later expanded and adopted into educational research of college students by Marcia Baxter Magolda (2004) for examining closely and holistically transnational Chinese students' critical thinking development—not only as a cognitive process but also as a meaning-making interpersonal and intrapersonal process with potential significance for themselves and the different worlds they straddle.

Third, Dewey's (1916) philosophy of education and conception of "critical or reflective thinking" for understanding the educational environment in which critical thinking is being fostered in transnational Chinese students' experiences and can be better cultivated as part and parcel of a globalizing community in which constructive progress and democratic association are valued and may need to be urgently maintained.

In short, the idea of using a complex interdisciplinary theoretical framework is for analyzing the macro-/sociopolitical, meso-/educational, and micro-/personal levels of forces that might be shaping transnational Chinese students' acquisition and application of critical thinking and the relevance (or not) of critical thinking education in the global era.

The rest of this chapter consists of three sections, each of which provides a detailed account of a theory utilized in the dissertation and how the theory or disciplinary lens shaped the project's data collection and analysis processes. While all of the theories discussed in this chapter played similarly important roles in contributing to the breadth and depth of the project, the first section explaining the sociological theory of *reflexive modernity* may seem particularly long. This is due in part to the density of the theory made more perplexing at times by the various sociologists who have worked on the concept. I spent time clarifying the concept in this chapter, because the sociological lens offers a pertinent context with which the significance of other theories, the study participants' experiences, and a possible reconceptualization of critical thinking, may be better understood. By contrast, the section on Dewey's philosophical lens and conception on *reflective or critical thinking* is not as long, even though it plays the most direct role in my understanding of critical thinking and its relevance to democracy. This is largely because a substantial amount of discussion on Dewey, as arguably the most important progenitor of the critical thinking movement, is already provided in the literature review chapter.

The chapter will end with a brief conclusion, along with an at-a-glance table which provides a quick view of how the dissertation's research questions, theoretical framework, and data collection are connected.

1. “Reflexive Modernity” in a Cross-Cultural Context: The Sociological Lens

(1a) Theory Overview: Reflexive Modernity

To unveil the macro-level social, economic, and ideological forces that might be shaping the aspirations and experiences of transnational Chinese students, I lean on the theory of “reflexive modernity”—otherwise known as “second modernity,” “high modernity,” or “late modernity” (Beck, Giddens & Lash, 1994; Giddens, 1991)—supplemented with a related concept of “transitology” in comparative and international education (Cowen, 1996 & 2006). The combination of these sociological theories or concepts may help to highlight the structural forces in late modernity—e.g., intensified globalization and a knowledge-based economy—that have propelled the precipitous rise of Chinese students abroad in the recent decades. In addition, the combined theories may shed light on an arguably more intensified process of “individualization” or “disembedding without reembedding” (Beck & Beck-Gernsheim, 2002, p. xxii) among transnationals, as their straddling of different geopolitical and sociocultural spaces may afford them greater opportunities as well as dilemmas.

According to Giddens, Beck, and Lash (1994), they were writing separately but similarly about a set of unprecedented social changes and challenges that were unfolding in the last few decades of the 20th century (and into the 21st century). The three prominent sociologists agreed to use the term “reflexive modernity” or “reflexive modernization” to designate what seemed to be the emergence of a new era or “period of evident transition” (p. 56). This transitional or later phase of modernity is marked, on the one hand, by an ever more intensified pursuit of knowledge and technology, and, on the other hand, by an increasing misgiving about the kind of "linear”

rationality (p. 12) and "certitudes" toward scientific and technological progress that had dominated "the thought and action of people and institutions in industrial society" or early modernity (p. 5).[74]

The key term "reflexivity" in *reflexive modernization* is rich in sociological meanings, as the three sociologists used it differently to refer to a number of related phenomena in contemporary societies, particularly in the West. According to Beck, the first or primary meaning of *reflexivity* should be "self-confrontation," referring to the later progression or stage of modernization that confronts or "undercuts" its earlier beliefs and effort (p. 2). This involuntary wrestling of modernity came to the fore because of the precarious side effects generated from its own success: e.g., weaponry of mass destruction, global ecological crisis, and uncertain futures with limited natural resources. To highlight the increasing predominance of these powerful threats to human well-being and survival, Beck also coined the term "risk society" as an aspect or direction of reflexive modernity, in which threats or risks are not only prevalent and imminent but also possibly beyond our means to successfully contain or control them.

In other words, while acknowledging the concept of "reflexivity" in sociology can have multiple meanings—i.e., including the more self-aware and active form of "reflection"—Beck stressed that *reflexivity* or *reflexive modernization* represents foremost "the autonomous, undesired and unseen, transition from industrial to risk society" (p. 6). Moreover, Beck seemed

[74] It may be important to note that the paradoxical nature of this current era or *reflexive modernity*—also called variedly by the three sociologists as *late modernity*, *second modernity*, or *high modernity*—arguably distinguishes itself from "postmodernity," which by definition entails a clearer or stronger attitude of skepticism, if not negation, toward grand narratives, ideologies, epistemological certain, and even rational reasoning itself. As the Beck, Giddens & Lash (1994) explained, they innovated this new concept to bypass "the protracted debate about modernity versus postmodernity" (p.5) in sociology, which did not seem to effectively capture the transitional or paradoxical characteristics of the contemporary era.

to draw a clear distinction between *reflexivity* and *reflection,* when he asserted that *reflexivity* as "this type of confrontation of the bases of modernization with the consequences of modernization should be clearly distinguished from the increase of knowledge and scientization in the sense of self-reflection on modernization" (p. 6). The contrast to the constructive, knowledge-generating force of *reflection* seems to be even more apparent in Beck's following description of *reflexivity* as a dark, Frankensteinian force, latent with the "possibility of a creative (self-) destruction of an entire epoch: that of industrial society" (p. 2).

In comparison, Giddens seemed to draw a closer connection between *reflexivity* and *reflection* as two sides of the same coin or two branches stemming from the same root of "modern critical reason" (Giddens, 1991, p. 3)—arguably the origin for critical thinking in education as well. In the following quotation, for example, Giddens also describes this turning upon or against itself phenomenon of late modernity by tracking further back to its historical and philosophical roots:

> The original progenitors of modern science and philosophy believed themselves to be preparing the way for securely founded knowledge of the social and natural worlds: the claims of reason were due to overcome the dogmas of tradition, offering a sense of certitude in place of arbitrary character of habit and custom. But the reflexivity of modernity actually undermines the certainty of knowledge, even in the core domains of natural science. Science depends, not on the inductive accumulation of proofs, but on the methodological principle of doubt. No matter how cherished, and apparently well established, a given scientific tenet might be, it is open to revision—or might have to be discarded altogether—in the light of new ideas or findings. The integral relation between modernity and radical doubt is an issue in which, once exposed to view, is not only disturbing to philosophers but is *existentially troubling* for ordinary individuals. (Giddens, 1991, p. 21)

According to Giddens' explanation above, what had begun optimistically in the age of Enlightenment or at the dawn of modernity—i.e., in its absolute faith for scientific progress and human rationality—has come back to shake the very systems of knowledge and progress it had

helped to propel. In other words, whereas Beck (1994) described *reflexivity* as an autonomous force of "self-confrontation" that had emerged in the late modernity or at the very moment of "victory of Western modernization"(p. 2), Giddens seemed to suggest that an arguably similar self-confronting activity of "radical doubt" has always been an integral part of the scientific mechanism or rationality. And this systematic rationality, grounded on a relentless openness to question or confront its own assumption, has arguably propelled not only continuous improvement in scientific knowledge claims but also rapid development of the modern era.

Perhaps there is indeed a close parallel, or an "integral relation" as Giddens mentioned, between the evolution of modernity and science, in that both entail an iterative process or mechanism regulated by a constructive/progress-oriented force and a de-constructive/doubt-oriented force that operate in a creative tension with one another. And the result of this process is alternating periods of construction, de-construction (i.e., breakdown), and reconstruction. Therefore, just as the potentially destabilizing element of critical doubt in science is indispensable for the advancement of scientific knowledge, "reflexivity" as *self-confrontation* may also be seen as an integral and iterative part of modernity that can potentially herald further *reflection*—i.e., a more constructive, conscious, and active phase of the process—for addressing problems within the modernity project.

It may be thus argued that in contrast to Beck's more ominous assessment of late modernity, Giddens' description highlights more of the generative elements within the period. That is, by highlighting that the very foundation of modern (scientific) knowledge lies in "the methodological principle of doubt" and an "open[ness] to revision," Giddens seemed to suggest that this knowledge-intensive and -dependent era might also contain the seed of its own solution.

In other words, the self-confronting and possibly subversive force of doubt has always been part of the construction and reconstruction of scientific or rational knowledge, making the accumulation of modern knowledge an arguably critical or reflective process. Therefore, within Gidden's *reflexivity* or *reflexive modernity*, the constructive component of *reflection* stands out more, contributing to a more hopeful view of the late modern era.

Here, the second and more positive meaning of "reflexivity" as "reflection," stressed more so by Giddens, comes to the fore. That is, "reflexivity" as a largely constructive, *turning upon* force that would lead to knowledge revision and improvement, rather than *turning again* force (as in the "creative (self-) destruction" or "self-confrontation" described by Beck) that could result in a total mistrust or negation of (scientific) rationality and knowledge claims in general. In the same vein, "reflexive modernity" is also referred to by Giddens (1994) as a kind of hyper-knowledge or knowledge dominating age, in which "all areas of social activity [have] come to be governed by decision—often, although not universally, enacted on the basis of claims to expert knowledge of one kind or another" (p. 76). In other words, reflexive modernity is a heightened phase of modernity, with an intensified reliance on knowledge as "systems of accumulated expertise" (Giddens, 1991, p. 3).

Yet in spite of his generally more moderate and optimistic perspective, Giddens seemed to largely concur with Beck about the gravity of the challenges posed by late modernity. For Giddens, however, the unwieldy and undercutting force of reflexive modernity seemed to stem not only from the precarious consequences of modernization or industrialization but also from the unsettling capability of doubt—which had been relatively self-contained within the scientific or intellectual community in the earlier period of modernity—is now pervasive in the larger

culture and society. Therefore, challenges in late modernity consist not only the physical and logistical kinds—e.g., large-scale natural and economic crises—but also the socio-psychological and epistemological types—e.g., existential worries and lack of certainty among the public in terms of what to believe or trust.

In addition, it may be worth nothing the difference, which Giddens (1991, 1994) may not have spelled out explicitly, between the self-confronting and paralyzing doubt as a pervasive feature of late modernity and the "methodological" and "systematic" doubt ideally practiced in science. That is, while the public today may be experiencing some profound uncertainties, such doubt is likely to be raw and untrained—unless extensive training through education has been received on how to make better use of it. In other words, without proper training and the ability to channel it, such a confounding force of skepticism and dissonance may not be effectively harnessed for constructive results or purposes as it typically would in ideal science practice or any other critical endeavor. Rather, as Beck (1994) warned, it may become an impassioned end in itself that is capable of "creative (self-) destruction" (p. 2) or total negation of rationality and the Enlightenment project that had espoused not only science but also democracy. Such a state of annihilation, in the face of proliferating natural and socioeconomic crises, may also create greater public susceptibility to extreme ideologies. The rise of nationalism and fascism in recent years, for example, may be indicative of this ideological vulnerability.

In light of these concerning challenges of late modernity, both Giddens and Beck—regardless of which aspect or meaning of reflexivity they each highlighted in their works—called for greater development of "reflexivity" or "reflection" among institutions and individuals. For example, Giddens (1991), who saw a closer connection between reflexivity and reflectivity,

argued that late modern society has inbuilt mechanisms that provide reflective feedback or critique. Systems of knowledge, such as the social sciences, are "constitutive" to modern institutions, meaning that knowledge systems not only describe but also, to varying extents, examine and shape the way modern institutions operate (p. 20).[75] This reflective or critical engagement with the shaping of society is exemplified in Giddens' own work as a prominent sociologist. For instance, he often used the term "institutional reflexivity" to both *describe* "the regularised use of knowledge" of contemporary institutions and *prescribe* or advocate for further institutional transformation. Such transformation would come about, as Lash (1994) summarized of Giddens' vision, through the practice of 'experimental' openness and 'dialogic' democracy"—i.e., "when institutions become reflexive and the propositions of the experts are opened up for [public] critique and contestation" (p. 201-202). In other words, for reflexive modernity to move forward in a more reflective and promising direction, "critical activity of the lay public" (p. 201) will have to be actively supported and the institutionalized knowledge or expert-systems will have to become more "democratically dialogical" with the public on how they shape policy, politics, and matters of everyday life (p. 203).

Likewise, even though Beck (1994) argued that *reflection* is not the primary characteristic of *reflexive/late modernity*, he also called for greater reflection or a "world of developed reflexivity, where the interrogation of social forms becomes commonplace" (p. viii). Beck seemed to reason that reflexivity as "self-confrontation" may invariably stimulate reflexivity as

[75] Giddens (1991) made a noteworthy distinction between the social sciences and natural sciences, stating the former "do not simply 'accumulate knowledge' in the way in which the natural sciences may do" (p. 20). In other words, there seems to be a kind of tension or paradox between science/natural sciences that ideally or purportedly operates on "the methodological principle of doubt" as Giddens mentioned in the long quotation presented in an earlier page and the perhaps more pervasive effort or focus on disseminating, utilizing, and "accumulate[ing] knowledge" in a linear rather than critical/reflective way.

"reflection," when he wrote the following: "In risk society, the recognition of the unpredictability of the threats provoked by techno-industrial development necessitates self-reflection on the foundations of social cohesion and the examination of prevailing conventions and foundations of 'rationality'"(p. 8). In addition, by advocating for a self-reflection of the firmly entrenched practices and assumptions of rationality in the West since the Enlightenment, Beck may be proposing something even more radical than Giddens about the extent of the transformation (i.e., of knowledge systems and the institutions that depend upon such knowledge) that needs to take place in late modernity. Such epistemological radicality, examining what constitutes rationality and knowledge worth propagating, is something that this dissertation may respond to in the later chapters, through the voices of transnational Chinese students and their cross-cultural perspectives.

Meanwhile, it may be important to note that Giddens and Beck's shared call for greater reflectivity or agency among individual citizens is in part a critical response to the late modern conditions that are, in many ways, unfavorable for such self-determining and reflective development. In his description of late modernity as a "post-traditional order," Giddens (1991) noted that whereas in early modernity, traditions remained central in regulating people emotions and behavior and in providing them with a personal and collective identity, in late modernity, traditional authority was gradually replaced by "systems of accumulated expertise" that are by nature "frequently internally contested" (p. 3). This new, science-based or knowledge-centered authority, according to Giddens (1994), can have a liberating effect on people by calling traditional practices and beliefs into question and potentially undermining the power of such "formulaic truths" by demanding reasons and "discursive justification" (p. 106). Yet, at the same

time, this rational order grounded on systematic doubt provides little certitude in its knowledge claims that are, in principle, always revisable or contestable; therefore, its effect can also be confounding, "since the ground is pulled from beneath the individual's feet" (p. 87).

In other words, the proliferation of scientific rationality and expertise in late modernity, along with increased mobility enabled by convenient transportation and market-driven globalization, effectively dis-embedded people from the strong hold that localized traditions once had in directing people's lives. With the retreat of traditional institutions, decisions that used to be made collectively or prescribed by norms and culture are now left to individuals' judgment and responsibility. Traditions may still be relevant today but only as another resource for individuals to choose and use at their own discretion. As a result, people in late modernity live as individuals with seemingly far greater freedom to construct their own "life styles;"[76] at the same time, their lives may also be more "anxiety-provoking," as they must decide for themselves among "multiple sources of authority" and "puzzling diversity of options and possibilities" (Giddens, 1991, p. 3).

Here, Beck's concept of "individualization" may shed further light on the challenges of individual lives in late modernity. According to Beck (1992), *individualization* refers to a " 'categorical shift' in the relation between the individual and society," (p. 127) which has been taking place in different phases since the beginning of modernity. And this institutionalized shift entails dis-embedding people from one way of life (e.g., traditional or industrial) and re-embedding them into new ones. In late modernity, or *individualization* in the later phase means

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[76] "life style" is explained by Giddens (1991) as a "dialectical interplay of the local and the global" and of individual and society, entailing negotiation on the part of the individual with all "the pluralization of contexts of action and the diversity of 'authorities'..." (p. 5).

that the individual is dis-embedded from the industrial society ways of life that still retained much of the certitude and hierarchical structure of traditional societies (e.g., kinship, marriage, gender, and class); at the same time, the late-modern individual is also re-embedded into "new ones, in which the individual must produce, stage and cobble together their biographies themselves" (Beck, 1994, p. 13).

In other words, individuals in late modernity may not be as free as they are often led to believe, especially under the prevailing ideology of neoliberal capitalism, also known as "the global neoliberal system."[77] On the contrary, late modern individuals, at least in the West, must operate within a complex system of institutions in which "basic civil, political and social rights, but also paid employment and the training and mobility necessary for it—are geared to the individual and not to the group"(p. xxi-xxii). As a result, while having many more entitlements, the individual in late modernity has also become "the basic unit of social reproduction for the first time history" (Beck & Beck-Gernsheim, 2002, p. xxii). Moreover, with the intensification of

[77] According to Fong (2011), "the global neoliberal system" is a 21st century version of capitalism that has spread across the world, aided by rapid development in transportation, technology, and communication. It distinguishes from an earlier version of capitalism situated in nation states, in that it now locates "more in the bodies of disciplined, deterritorializable individuals" (p. 21). It also draws upon "neoliberalism," a political economic theory that aims to advance individual well-being "by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets, and free trade" (Harvey, 2005, p. 2).

Beck & Beck-Gernsheim (2002) called for a clear distinction between the popular "neoliberal idea of the free-market of individual" or "neoliberal individualism" and the sociological concept of "individualization" or "institutionalized individualism", as they explained in the following quotation: "Neoliberal economics rests upon an image of the autarkic human self. It assumes that individuals alone can master the whole of their lives, that they derive and renew their capacity for action from within themselves. Talk of the 'self-entrepreneur' makes this clear. Yet this ideology blatantly conflicts with everyday experience in (and sociological studies of) the worlds of work, family and local community, which show that the individual is not a monad but is self-*in*sufficient and increasingly tied to others, including at the level of world-wide networks and institutions. The ideological notion of the self-sufficient individual ultimately implies the disappearance of any sense of mutual obligation—which is why neoliberalism inevitably threatens the welfare state. A sociological understanding of *Individualisierung* [i.e., 'individualization'] is thus intimately bound up with the question of how individuals can demystify this false image of autarky. It is not freedom of choice, but insight into the fundamental incompleteness of the self, which is at the core of individual and political freedom in the second modernity" (p. xxi).

neoliberal globalization and a knowledge economy that places increasing demands on innovation and human capital,[78] the late-modern individual must constantly upgrade their skills, credentials, and "do-it-yourself biographies," by asserting an entrepreneurial and self-disciplined spirit and by making decisions that entail uncertainty and risks.

Yet the post-traditional order of late modernity may make such decision-making particularly challenging for the individual. For example, Beck (1994) observed the following:

> Opportunities, threats, ambivalences of the biography, which it was previously possible to overcome in a family group, in the village community or by recourse to a social class or group, must increasingly be perceived, interpreted and handled by individuals themselves.… And even the self is no longer just the unequivocal self but has become fragmented into contradictory discourses of the self. Individuals are now expected to master these 'risky opportunities', without being able, owing to the complexity of modern society, to make the necessary decisions on a well-founded and responsible basis, that is to say, considering the possible consequences. (p. 8)

In addition, Lash (2002) commented that the late modern individual is not only characterized by having to make constant decisions or choices big and small, but also by the fact that they "must choose fast, as in a reflex—make quick decisions" (p. ix). This means that the late-modern individual "may wish to be reflective but has neither the time nor the space to reflect" (p. ix). And by highlighting the rushed way in which the late modern individual are conditioned to respond—i.e., defaulting to a near-automatic and unreflective response rather than a thoughtful and reflective response—Lash seemed to suggest a third meaning of "reflexive modernity" from the standpoint of the individual in this era.[79]

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[78] "Human capital" can be defined as "intangible collective resources possessed by individuals and groups within a given population. These resources include all the knowledge, talents, skills, abilities, experience, intelligence, training, judgment, and wisdom possessed individually and collectively, the cumulative total of which represents a form of wealth available to nations and organizations to accomplish their goals. (Huff, R. (2018, October 4). *human capital*. *Encyclopedia Britannica*. https://www.britannica.com/topic/human-capital; retrieved on 5.25.2022)

[79] As oppose, arguably, to Giddens' meaning of reflexive modernity from the angle of scientific knowledge production or expert system that has given much of the structural characteristics of late modernity, or Beck's

In short, the irony indicated by both sociologists analysis should not be missed here: that is, just as people in late modernity enjoy more opportunities and choices than ever before, they may also not be well supported to make decisions in a sufficiently reflective manner—all in the face of a world that is fast-changing, unpredictable, and replete with imminent risks.

Looking at the issue at the global level: the late modern condition exists, according to Beck, "[n]ot only in the West, but in countries that have abruptly opened their doors to Western ways of life. People in the former GDR, in Poland, Russia or China, are caught up in a dramatic 'plunge into modernity'" (Beck & Beck-Gernsheim, 2002, p. 2). By tracking the sociological and every-day life changes in China for several decades, Yan (2009) confirmed that a similar, though state-led process of individualization has been taking place in contemporary China as well. Central characteristics of individualization in late modernity can be found particularly in the experiences of the younger generations, who are less constrained by the order of tradition, more "proactive and self-determining," yet also more socially compliant and less unique as individuals (p. 275). Moreover, like Giddens who asserted that elements of pre-modern, modern, and late modern coexist in societies in the late modern era, Yan also found that the Chinese individualization to be a "multilayered and multi-temporal mix" (p. 291). This is because, on the one hand, the Chinese individuals are experiencing greater freedom, self-expression, and risks as China adopts market economy and neoliberal globalization, on the other hand, Chinese

meaning of reflexive modernity from the view of society or the general public that has grown weary of the destructive consequences of modern science and industrial rationality. It may be argued that the meaning of reflexive modernity highlighted by Lash is closer to Beck's than to Giddens', as both Lash and Beck described responses that are largely unreflective or automatic, similar to involuntary physical reflexivity.

individualization took place without "cultural democracy" and most Chinese people are "still working to achieve goals that belong to the first modernity of Western Europe" (p. 290). Many of the cultural and socio-political practices in China indicate values that are by and large characteristics of the modern or the pre-modern world: a powerful state with a centralized government, a mass education system that supports an elitist meritocratic agenda, and a sense of the self still intimately connected to the values of traditional institutions, such as the family.

In light of the unique characteristics that define the Chinese individualization process and the sense of uncertainty, contending knowledge and authorities, and risks that are so pervasive in late modernity, particularly in the West, transnational Chinese students' transitions across the different social, cultural, and geopolitical spaces, make a fascinating case for studying the individualization process in a cross-cultural context.

Moreover, as the production of knowledge or, more fundamentally, the "radical doubt" (Giddens, 1991), plays a central role in the development of late modernity and its day-to-day life on the individual level, the teaching of critical thinking—closely related to radical doubt—also warrant a closer look. That is, given the purported importance of critical thinking in American higher education and its connection to the rational project of the Enlightenment that has espoused modern science, democracy, as well as the largely unintended challenges we now face in the second modernity, it is puzzling that critical thinking should have been perceived as a largely cognitive activity or learning objective (as explicated in the literature review chapter). The fuller nature and far-reaching significance of critical thinking will be explored, and perhaps rediscovered, in this dissertation via transnational Chinese students' learning experiences. We will see how the acquisition and application of critical thinking play a role, if at all, in these

students' development—not only academically but also personally, as they move across countries and systems and juggle through the contending possibilities of the pre-modern, modern, late-modern, and perhaps postmodern.

(1b) Theory Overview: "Transitology"

Venturing and adjusting to a new educational environment for transnational Chinese students may beyond the obvious language barriers, socialization differences, and preferred learning styles. It may entail a cultural and identity shift, and possibly a crisis, as they transition from one social and political system to another. Robert Cowen's term "transitology" seems particularly apt for illuminating what such a transition might be like. The term was originally used by political scientists to explain the simultaneous *deconstruction* and *reconstruction* of political, economic, and education systems that were happening to autocratic regimes in the process of democratization, such as the former "socialist bloc." Cowen (1996) adopted the term in comparative education to "illustrate some of the complexities of the transition from pre-modern to modern and late-modern educational systems" that various countries are experiencing in a globalizing world (p. 163).

By "pre-modern," Cowen (1996) referred to a type of educational systems that were devoted to training bureaucratic elites and thus accessible only to a small population, such as the Confucian model in imperial China (p. 156). "Modern" education systems, according to Cowen, first emerged during the time of American and French Revolutions, were created to provide "mass schooling" to transmit "moral messages of the central state," and to cultivate political loyal among its citizens (p. 158). By contrast, "late-modern" systems grew not out of "political

revolutions, but with the gradual recognition of a crisis"[80] and the ensuing educational reforms taken place in various English-speaking countries, e.g. the UK and USA (p. 159-160). Cowen offered incisive descriptions of the central characteristics of the "late-modern" paradigm:

> The central state seeks an off-loading of the provision of education, while official and political discourse recasts citizens as consumers of education. The state becomes the agent which certifies the providers, through its control of qualification structures and licensing arrangements. The project of education thus becomes the provision of services by the market to consumers who have a right to choose education and the state frames a system which permits diversity, choice, freedom and consumer rationality. (p. 160)
>
> The university ceases to be the apex of the system and ceases to carry major cultural messages. It becomes a place of increasingly open access but its pedagogic purposes are increasingly dominated by the transmission of occupationally useful knowledge and socialization into entrepreneurial alertness. The university also links, in the other direction, with the research and development industry and, thus, the internal valuation of the act of pedagogy diminishes. Classes grow larger and there is increased specialization of research and teaching functions. (p. 161)

In short, as the state and educational system of the "late-modern" model differs drastically from the "modern" and "pre-modern," they become increasingly economic or market-driven, representing less of a political or moral authority. The "late-modern" model is arguably the dominant paradigm for international education today, because the English-speaking countries that started the educational reforms or the "late-modern" model also constitute most of the host countries for international/transnational students around the world.

As Cowen's examples of modern educational establishment in the former USSR and in China demonstrated, the transition for these states and their educational systems were full of destruction of its pre-modern elements and reconstruction of a new political identity and cultural model. Cowen argued that transitions as such are tremendous at the macro political and

[80] According to Cowen (1996), "the crisis" was shaped by various forces, such as the oil crisis in the 70s, the rise of competing global powers in East Asia, and problems in the EU, NAFTA, and other major trading organizations.

institutional level, where "[n]othing about these processes was automatic or part of a routine process" (p. 164). If transition as such is so at the national level, what might it be like on the individual level for international or transnational students who travel from one state and its educational system to another?

More specifically, what might the transition experiences be like for transnational Chinese students, who move from an arguably "modern" China to a predominantly "late-modern" or even "post-modern" United States? Or perhaps with the spread of the global neoliberal system, the educational models proposed by Cowen may not align as well with the politically autocratic yet economically neoliberal state and educational model in China today. In other words, "modern" and "late-modern", perhaps even "pre-modern" and "post-modern" forces may be simultaneously shaping transnational Chinese students' aspirations and challenges as they make their academic, social and personal transitions in a new educational environment.

As so many Chinese students have studied abroad and many more are expected to make the same transnational journey in the near future, their experiences make a case study for the increasingly visible cross-cultural individualization in the 21st century. Whether they choose to remain in the host country or return to their home country after the study, they are to various extents agents of globalization who are shaping the future of the world. Therefore, it would be important to study both the structural forces that define the conditions of their experiences, as well as education and skills, such as critical thinking, that provide them with the tools and dispositions for exercising their agencies and shaping the conditions of their well-being.

(2) Application to Dissertation Research

Giddens and Beck's theory of reflexive modernity, which includes a host of interconnected concepts—e.g., "risk society," "individualization," "post-traditional order," and "reflexivity" as "self-confrontation" vs. "reflection"—provides a rich sociological framework by which I can use for interpreting the macro or structural level forces that may be shaping transnational Chinese students' experiences. Arguably, as these students typically make the transition from one substantially different geopolitical, educational and temporal space to another on their own (e.g., as the first generation in their extended family to go to college and abroad), they may experience an extra intense version of individualization/reflexive modernization in a cross-cultural context. Therefore, my questions for the study participants are invariably broad.

It may be important to note that I did not draw key concepts from the theory as "deductive codes" and impose them onto the data analysis (more detailed explanation on data analysis in the following chapter). However, the sociological framework did shape the following questions, which were explored either directly with the participants in the semi-structured interviews or indirectly via further data analysis and interpretation:

What are students' aspirations or motivations for studying abroad and for the majors they choose? What challenges, changes, and/or uncertainties do they experience that might be characteristic of late modernity or unique to their identity as transnational Chinese students?

What are the pre-modern/traditional, modern, late-modern, and perhaps post-modern and cross-cultural elements do they have at their disposal and shape them in terms of how they perceive themselves, relate to others, and make important decisions? How do these elements

interplay and change as their experiences abroad deepen? Are any of the changes related to their exposure and application of critical thinking?

Do students experience a noticeable difference in the types of knowledge that are being transmitted in higher education abroad? How does knowledge play a role in their decision making, and how do they respond to conflicting sources of knowledge claims? Are they being taught to think reflectively or apply "methodological doubt" to their chosen disciplines or knowledge fields?

Moreover, drawing upon the concept of "transitology" that highlights the *deconstruction* and *reconstructive* phases of a tremendous transition, e.g., from one socio-political system or a stage of modernity to another, I also considered the following questions:

What gets deconstructed and reconstructed as they transition and become transnational and cross-cultural in many ways? What is the transition, if any, like for this new generation of transnational Chinese students born in a much more globalized, "multilayered and multi-temporal" China? How does the acquisition of critical thinking, among other resources or factors, play a role in the way they make the transition similarly or differently?

2. "Self-Authorship": A Psychological Perspective

(1) Theory Overview

In addition to the sociological lens for understanding the macro-level forces that may be shaping transnational Chinese students' experiences, I also draw upon "self-authorship," a key concept or theory in constructive-developmental psychology and student affairs literature, for

exploring the micro-level aspects, i.e. cognitive and personal, of these students' development vis-à-vis critical thinking.

As mentioned in the literature review chapter (Part B), cognitive and developmental psychologists have long participated in the understanding and propagation of critical thinking as an educational concept or approach. Even though their work may not be fully recognized in the critical thinking movement or literature, traditionally dominated by analytical philosophers in the U.S., these psychologists interested in critical thinking or students' intellectual/cognitive development have looked at the topic from a holistic perspective—i.e., considering the cognitive along with the intrapersonal and interpersonal development. And this integrated perspective may be particularly relevant for understanding the complex learning processes of critical thinking in a cross-cultural context, such as those experienced by transnational Chinese students.

"Self-authorship" refers to "the capacity to internally define a coherent belief system and identity that coordinates engagement in mutual relations with the larger world" (Baxter Magolda, 2004, p. xxii). The term "self-authorship" was first coined by developmental psychologist Robert Kegan (1994) to describe a fairly advanced stage in the maturation of a person's meaning-making capacity. This concept was later developed into a holistic theoretical framework by other constructive developmental or cognitive psychologists, such as Baxter Magolda, for understanding and facilitating college students' learning and development. Yet the source of this holistic framework or approach to cognitive development—salient in Kegan and Baxter Magolda's work on *self-authorship* or meaning-making capacity, as well as in Kurfiss' developmental approach to the teaching of critical thinking and King's "reflexive judgment

model" (mentioned in the literature review)—may be traced even further, to William Perry's (1970) groundbreaking work titled *Intellectual and Ethical Development of College Students*.[81]

It may also be important to note that the theory does not encourage a self-centered individualism; rather, a "careful consideration of external perspectives and others' needs, but this consideration occurs in the context of one's internal foundations" (Baxter Magolda, 2004, p. xix). In other words, a person possessing self-authorship would be someone who is not controlled by external influence, who has shifted "from external to internal self-definition" and is able to achieve a balance between external demands and internal needs (p. xvii). The *shift* from the external to the internal source or voice as foundation for one's life is further delineated by Baxter Magolda into the following four stages:

- First, *following external formula*, referring to the initial mode of borrowing formulated ideas about the world and the self as one's own;
- Second, *crossroads*, indicating a stage where one becomes dissatisfied with the external formulas that either becomes less meaningful or helpful;

[81] The book marked one of the first studies that explored and demonstrated the close connection between knowledge and selfhood, i.e., between one's intellectual/cognitive and personal/moral development. Tracing students' development for more than a decade, Perry and his team presented a scheme of nine positions that charts the sequence intellectual and ethnical development of undergraduate students throughout their college years. The nine positions fall into three larger groups or stages: positions 1-3 represent the transition from a dualistic, right-wrong outlook to recognition of multiplicity; positions 4-6 illustrate a gradual but radical change in perception that "all knowledge and values are contextual and relativistic," which means one's own assertions as well as those of the authority "are now open to analysis, evaluation, and the requirements of contextualized evidence" (Love, 1999, p. 12); positions 7-9 highlight the growing commitment and agency as one defines one's values and choices in spite of uncertainties about the relativistic world.

In light of Perry's model, it would be easier to understand that students in the same class may have different epistemological and value assumptions that are different from each other as well as from the teacher. Some students, for example, may perceive knowledge as facts and tend to defer to authority as the source of knowledge. For these students, coming to college where knowledge is viewed as interpretation or construction embedded with uncertainties can be an intellectually and personally overwhelming experience. Therefore, epistemic sensitivity and differentiated pedagogy on the part of the educator may help such students learn and grow in a more optimal way.

- Third, *becoming the author of one's own life,* meaning a phase when one begins to forge a voice and identity of one's own that defines what to believe and how to relate to others;
- Fourth, *an internal foundation*, indicates a sense of power over one's life with the development of an examined or internal foundation.

Classroom pedagogy based on self-authorship, i.e. "learning partnerships model" (Baxter Magolda & King, 2004), is about developing students' confidence and ability to determine for themselves fundamental interpersonal and intrapersonal questions that are often considered beyond the scope of college educators: *who am I, what do I believe, and how do I relate to others.* In other words, self-authorship is a holistic theoretical and pedagogical model that entails a three-dimensional perspective on students' education: cognitive, intrapersonal, and interpersonal. This framework is developed to address a gap often neglected in higher education; namely, students graduate with strengthened cognitive ability to evaluate knowledge claims based on evidence, i.e. critical thinking as rational reasoning and analysis, yet without an equally developed sense of self and identity that is fundamental to their wellbeing and what they choose to believe and how to interact with others.

Even though the self-authorship framework was formulated based on domestic students, key points of the theory may be helpful in uncovering the interplays between what transnational Chinese students learn at in the cognitive dimension, such as critical thinking, and how they perceive themselves and relate to others in the intrapersonal and interpersonal dimensions. For example, one of the central claims of self-authorship is that the three dimensions develop almost in sync (Baxter Magolda, 2010, p. 25-42), meaning not one dimension may develop far without correlating development in the other two. Moreover, empirical studies adopting this theoretical

framework reported that too much disequilibrium in any of the dimensions may hinder students' overall development (Pizzolato, 2003). This later point concurs with a well-researched concept, "optimal dissonance" in constructivist or developmental cognitive psychology, which is defined as "a moderate, growth-enhancing level of discomfort with one's current functioning" (Zhang, 1999, p. 426).

Educational psychologists have consistently argued that in order to reach a higher order thinking or epistemological position, students need an optimal amount of dissonance, which may be of a cognitive, interpersonal or intrapersonal nature (Evans, 1996; Kohlberg, 1969; Perry, 1970). Furthermore, there are indications that "cognitive dissonance," discomfort, or shifts that students experience in the cognitive dimension play an initiating or strong role in terms of stimulating (or inhibiting if too strong) students' overall development. Baxter Magolda's earlier research on college students' epistemological development (1994, 1995, 1998) reported that it is "independent and contextual knowing" [82] gained in college that prompt students' "awareness of the necessity for self-authorship in adult life" (p. xvii). King (2010) further asserted the "stronger partner role" of the cognitive dimension in students' self-authorship or meaning-making process, arguing that the meaning-making filter or process is essentially cognitive: "one would have to be able to think complexly before being able to think complexly about identity and/or interpersonal or social issues" (p. 177).

[82] Baxter Magolda (1992) reported a sequence of four different ways of knowing in college, where students begin college with an *absolute* way of knowing as they "were absorbed with finding out what the authorities thought;" they then progress to a *transitional* way of knowing, when they realize that knowledge claims and authorities conflict with one another, and an *independent* way characterized by epistemological uncertainty and subjective knowledge; finally they reach *contextual* way of knowing in which knowledge is viewed "as relative to a context and knowledge claims better or worse based on evaluation of relevant evidence" (p. xvii).

These findings about the collateral development of the three dimensions, optimal dissonance, and cognitive priority raise questions about the various challenges that Chinese students face while abroad—to what extent the challenges they face via exposure to critical thinking is optimal to their growth or inhibitive to their overall development? As O'Sullivan & Guo (2010) reported that when Chinese students abroad are challenged with harsh criticism about China, they may not only resist such criticism out of "filial nationalism" but also perceive critical thinking as negative thinking. The authors concluded that a better critical thinking pedagogy for Chinese students abroad should be more culturally sensitive to these students' belief system and the unsettling disorientation critical thinking may entail for students who are not used to having their received or revered ideas challenged or even attacked.

From the perspective of self-authorship theory and its corresponding learning partnership model, a better critical thinking pedagogy for transnational Chinese students would aim for an optimal level of cognitive dissonance which may vary depending on students' prior experiences and exposure to critical thinking. For Chinese students who are new to studying abroad, a more effective way to deepen their acquisition and application of critical thinking might entail examining issues that are closely related to their transnational/cross-cultural experiences, such as the different cultural norms and values they encounter in their daily life, learning environment, decision-making processes. As this dissertation's data analysis chapters will demonstrate, the case of transnational Chinese students highlights the need for a "stronger" critical thinking pedagogy that echoes Noddings' alternative vision and is more inclusive and open to addressing issues in the intrapersonal and interpersonal along with the cognitive or academic.

(2) Application to the Dissertation Research

Recall, in the literature review, Cheng's (2012) description of her experience (albeit as a member of an older generation of transnational Chinese students, born in the 70s or early 80s) transitioning from China to the U.S. as "a matter of how one explores and interprets the world" (p.1). While the younger generation of Chinese students abroad captured in this study may or may not find the contrast between China and the U.S. to be as dramatic due to the integrating effect of globalization over the past few decades, it is still likely that the new educational environment and exposure to critical thinking as a key feature of American higher education may still entail substantial changes well beyond the academic domain.

The complexity and significance of the changes that transnational Chinese students experience may be better understood by drawing upon developmental psychologists' work on the connection between intellectual/cognitive and moral/personal development. More specifically, leaning on the three-dimensional framework of "self-authorship," which considers the cognitive, intrapersonal, and interpersonal development together as integrated aspects of a whole developmental process, I ask the following questions vis-à-vis students' acquisition and application of critical thinking:

How does the exposure to critical thinking impact not only participants' cognitive or epistemic development, but also other significant aspects of their overseas educational experiences, e.g., decision-making and identity[83] *formation?*

[83] "Identity" is defined here in a broad sense, as how one views oneself and what one values (Baxter Magolda, 2004, p. xvi).

What epistemological stances (e.g. deferring judgment to authority vs. relativistic) do they hold? How do they view themselves (intrapersonally) and relate to others (interpersonally)? Did their views in the epistemic/cognitive, intrapersonal and interpersonal domains change during their time abroad?

What kinds of challenges and changes take place in their cognitive, intrapersonal, and interpersonal dimensions over their college years? How optimal are the challenges, how do the changes in these three dimensions interact with one another, and how do the changes and challenges shape participants' experiences and responses toward critical thinking?

As self-authorship emphasizes contextual knowledge or consideration for one's immediate context as well as a self-defined foundation, to what extent is participants' decision making, which may be constrained by external contexts or familial obligations, grounded on an internal core; how might critical thinking have facilitated or not its development?

There may be important caveats in adopting a self-authorship framework when examining transnational Chinese students' cross-cultural experiences, as the framework was developed based on and for the American student population. Considering Fong's (2011) account of how the national and political discourse, familial and social support, and individual and personal aspirations have been synchronously woven to inculcate a uniform vision and aspiration for Chinese youth: to rise to the top of the global neoliberal system as the way to succeed for themselves, their families and their countries. The tightly integrated and shared discourse at the national (political), familial (social), and individual (personal) levels, as argued by Fong, raises questions about the interrelation between the interpersonal and intrapersonal for transnational Chinese students. It seems that the connection between intrapersonal and the

interpersonal within one's sense of selfhood or identity might be tighter than that espoused in the United States. *If so, how might this unique/Chinese selfhood change the acquisition and application of critical thinking? Vice versa, how does the exposure and development in critical thinking shape these students' perception of themselves and relation to others?*

In other words, in data collection and analysis, I would pay particular attention on participants' description of their intrapersonal domain and family dynamic, in order to gain a more comprehensive understanding of their sense of self as transnational Chinese students. Moreover, like the way in which the sociological lens was used, specific ideas from the self-authorship theory (e.g., the four stages of self-authorship development) were not drawn as deductive codes and used directly to organize or analyze the research data. Rather, the holistic approach of the psychological theory (e.g., the more general three dimensions—cognitive, intrapersonal, and interpersonal) broadened and deepened the scope of questions I asked about participant's experiences abroad and with critical thinking in particular. After a detailed, inductive analysis process of the data from the participants, I then go back, in the conclusion chapter, [84] to the key concepts in the theoretical framework for further insights and interpretation. This iterative process between data and theory is also meant to create a dialogue between the theories that shaped the empirical or qualitative research and the transnational/cross-cultural research that may further inform and challenge aspects of the domestic/American/Western theories, including those on what critical thinking is and how it can or should be taught.

[84] Also in the conclusion or discussion section of the two in-depth case analyses in Chapter 5. The two cases were written as mini versions of how individual cases (i.e., data from each participant) are analyzed and then further interpreted by using the three theoretical or disciplinary frameworks.

3. “Reflective Thinking”: A Philosophical Perspective

In light of the possible macro- and micro-level issues pertaining to the transnational experience of Chinese students abroad and the implication of their exposure and development of critical thinking, I lean on Dewey’s philosophy, particularly his seminal work *Democracy and Education,* to gain a broader understanding of critical thinking as part of an education that is situated in a democratic society and that can also act as a furthering, democratizing force.

Even though Dewey’s philosophy of education was published about a century ago, it responds to Giddens and Beck’s analysis of the late-modern conditions, as some aspects of late modernity (e.g., globalization and individualization) may have begun to emerge during Dewey’s time.[85] For example, like Giddens (1991) who observed “the susceptibility of most aspects of social activity” as a characteristic of late modernity (p. 20), Dewey (1927 [2016]) was also concerned with the emergence of “a great society” where people are increasingly connected through communication technology to events that happen afar, that at the same time lacking the benefit of “a great community” where people communicate and participate in the decision-makings about their matters that affect their everyday life.[86]

In addition, Dewey’s concept of “reflective thinking” (as discussed in the literature review chapter) seems to echo Giddens and Beck’s call for greater reflexivity (i.e., as reflection) that may be urgently necessary for late modernity. More specifically, Giddens and Beck’s vision of an ideal reflexivity that necessitates not only a constructive reflection or “chronic revision in the light of

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[85] Concrete evidence and explanation of this point—elements of late modernity or globalization—can be found in Scheuerman’s 2014 online article at http://plato.stanford.edu/archives/sum2014/entries/globalization

[86] Note to myself: Add to bibliography, *The Public and Its Problems* & check p. 147 or p. 98

new information or knowledge" (Giddens, 1991, p. 20) but also a kind of "political subjectivity" (Beck, 1994, p. 18) or involvement from the individuals or citizens that would propel institutions to transform and address issues pivotal to the future of the global society. Similarly, Dewey also tirelessly espoused a similar vision of individual agency that brings together knowledge creation and concerns for the public good, as demonstrated in the following quotation: "The world doubtless owes a great deal to its pure 'researchers' and scholars; but it would owe a great deal more still to them if they had been educated into habits of thinking out the bearings of their abstract ideas upon social matters" (Dewey, 1908, p. 1-3).[87]

In other words, Dewey's vision of education also highlights the interconnectedness between knowledge, society, and individual agency or selfhood. These three components or dimensions are similarly explored in the two other theoretical frameworks discussed earlier, i.e., in the psychological theory of self-authorship and the sociological theory of reflexive modernity. As the conclusion section at the end of this chapter will summarize further, these theories from different disciplines arguably respond to one another, pointing to a 3-dimensional or holistic approach with which we will later examine the existing form(s) of critical thinking education and consider its reconceptualization for a more diverse and globalized student population.

(1a) Theory Overview: Education Situated in and for Democracy

An explanation of Dewey's theory of education necessitates reference to his thoughts on democracy, because he was an educational reformer, psychologist, and philosopher who wrote

[87] The exact page of this quotation is unknown or may need to be investigated; according to the secondary source provided in a graduate seminar on Dewey I took in 2017, the article titled "The Bearings of Pragmatism Upon Education" was first published in *Progressive Journal of Education* 1 (Dec. 1908): 1-3.

extensively in almost all areas of philosophy, particularly on education and politics. Therefore, the following theoretical overview of Dewey's conception of critical or reflective thinking (some of which was discussed in the literature review chapter, part B) will begin with a brief discussion of Dewey's notion of "democracy," along with other key concepts in his vision of education that is situated *in* and *for* the maintenance of such democracy.

First, Dewey's conception of "democracy" or "a democratic society" within his discussion of education. In contrast to the more prevalent view of democracy as a form of government that entails, for example, regular elections and citizens' voting rights, Dewey (1916 [2012]) asserted that democracy is "more than a form of government; it is primarily a mode of associated living, of conjoint communicated experience" (p. 94). Not denying the necessity of a democratic political system, Dewey however placed the political dimension *secondary* to the social dimension, arguing that the substantive content of a democratic society lies in the day-to-day interaction and communication among its people. This social conception of democracy stems from Dewey's perspective that democracy is contingent, based not on an ideal principle but a convergence of various factors, such as "the development of modes of manufacture and commerce, travel, migration, and intercommunication which flowed from the command of science over natural energy" (p.94). In contrast to the emergence of democracy, deliberate effort is required for the maintenance of democracy and its attributes, such as *greater individualization* and *broader community.*[88] Communication and education constitute the essential means or deliberate efforts by which democratic values and practices are transmitted and sustained.

[88] Dewey defines *greater individualization* as "the liberation of a greater diversity of personal capacities" and *broader community* as based on "the widening of the area of shared concerns" (p. 94). The increase of individualization and community (can) happen at the same time in Dewey's understanding of a democratic society, contrary perhaps to

Second, by "communication," Dewey referred to a cooperative process in which people share perspectives and experiences, reconsider assumptions and attitudes, and coordinate actions in light of those taken by others. Such communication is *educative,* argued Dewey (1916 [2012]), because "to be a recipient of a communication is to have an enlarged and changed experience" (p. 8). Moreover, the one who communicates may also be similarly affected, because sharing one's experience, as Dewey envisioned, "requires getting outside of it, seeing it as another would see it, considering what points of contact it has with the life of another" so that the meaning of the experience can be appreciated (p. 9). It is not difficult to see why such communication that "insures participation in common understanding" and espouses "similar emotional and intellectual dispositions" can be rewarding on a personal level, for it expands internal horizon and increase sense of connection between individuals. Moreover, on the societal level, particularly for a democratic society, such communication would be necessary, because it serves as a humanizing force and foster shared interests and purposes that makes a community a "true social group" (p. 8).

Yet to communicate as such also seems challenging and even counterintuitive, because we normally think of shared experiences and common understanding as *conditions for*, rather than *a result of,* communication and cooperation. Arguably, the foundation of Dewey's contrary view about common ground and communication rests upon his other views, such as those on human nature and "individuality"—a third key point in his overarching vision of democracy and education. That is, taking a naturalistic, evolutionary approach, Dewey has argued that humans

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the notion of individualization discussed in Yan's book where individualization erodes the (traditional) sense of community. Individualization in Dewey's sense is a good thing.

are innately social and thus are naturally inclined to communicate with one another (Noddings, 2012, p. 35). In addition, Dewey (1939) also advocated democracy as a *personal* way of life grounded on a faith "in the potentialities of human nature" and a commitment for "providing conditions which will enable these capacities to reach fulfillment"[89] (p. 226). Elsewhere, Dewey (1919) called these potentialities or capacities in every human being "individuality"—i.e., as "the manifestation of something irreplaceable" that makes each person unique (p. 53). In other words, Dewey's theory of democracy as communication is founded upon on a profound, ontological respect for human life and individuality. It may be further inferred that such respect embodies a particular conviction about *each individual possessing certain inalienable rights and thus a form authority within*[90] that must be mutually regarded in communication and other forms of associations in a democratic society.

This emphasis on "individuality" and, by extension, a kind of dialogical (i.e., affirmational of the self yet open to the other) authority embedded in Dewey's conception of communication can also be seen in his stress on "involuntary disposition and interest," or fourth key point in his vision of democratic education. Dewey (1916 [2012]) explained the function of education in a democratic environment in the following way: "Since a democratic society repudiates the

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[89] Dewey sees this human recognition or right as fundamental. In a way Dewey's democracy is also a human right concept, as he describes democracy as a "belief in the capacity of every person to lead his own life free from coercion and imposition by others provided right conditions are supplied" (1939, p. 227). Although Dewey critiques individualism, he espouses individuality—the "irreplaceable" uniqueness and potential in every human being— as human rights and as a basic feature of his participatory/social democracy.

[90] More exploration should be done on Dewey's concept of "(internal) authority," in light of Prof. J. Rogers' comments: "He would be wary of associating ultimate authority anywhere or in anyone, as pragmatism expresses a general wariness in such absolutes. But, more than that, he would suggest that epistemic authority emerges from the interaction among people (rather than from something that exists within any one person.) Here we see part of his critique of what he terms "atomistic individualism" that forms the basis for a certain stream of democratic thinking. Atomistic individualism presumes that individuals are isolated and discrete and that through voting we can aggregate their preferences into some collective whole. Conversely, Dewey wants us to attend to individuals in relationship with one another."

principle of external authority, it must find a substitute in voluntary disposition and interest; these can be created only by education"(p. 94). This statement suggests that the role of a democratic education is more than producing a citizenry that knows how to vote intelligently; it is about fostering, at a more fundamental level, dispositions and interests of one's own that reflect each person's individuality.

More specifically, by *disposition*, Dewey referred to a broad set of moral, emotional and intellectual habits and attitudes; those pertaining to democratic individuals include "directness," "open-mindedness," "whole-heartedness," and "responsibility"(p.187). [91] The cultivation of dispositions were particularly emphasized by Dewey because these "spontaneous and personally engrained" "habitudes which lie below the level of reflection" are what powerfully shape our decisions, actions, and interactions without us noticing at the conscious level (p.23). In addition, Dewey also highlighted *interest*, not only because people vary innately in terms of what attracts or generates meaning for them, but also because Dewey believed that "only as he has his own purpose and problem" does one begins to "think for one's self" and become "mentally an individual" (p.321). It can be seen, therefore, *voluntary disposition and interest* are fundamental to the development of a person's independent thinking and sense of the self as a unique individual. Moreover, the knowledge and actualization of one's individuality may translate into a sense of "internal authority of truth" (Dewey, 1903, p. 193) that would replace "external

[91] Dewey defined each of these key dispositions as: (1) "directness" or "confidence" (i.e. or "It denotes the straightforwardness with which one goes at what he has to do. It denotes not conscious trust in the efficacy of one's power but unconscious faith in the possibilities of the situation"), (2) "open-mindedness"(i.e. "an attitude of mind which actively welcome suggestion and relevant information from all sides"), (3) "whole-heartedness" (i.e. "completeness of interest, unity of purpose; the absence of suppressed but effectual ulterior aims"), and (4) "responsibility" (i.e. "the disposition to consider in advance the probable consequences of any projected step and deliberately to accept them: to accept them in the sense of taking them into account, acknowledging them in action, not yielding a mere verbal asset") (p. 187-193).

authorities" and enable each person to function independently as an individual, who is also open to change or to be shaped mutually by participation and communication with others.

Lastly, it may be important to also point out that since such education's purpose lies not in transmitting a set of facts and knowledge but in cultivating *voluntary disposition and interest,* Dewey advised that teachers (perhaps of the very young especially) "never educate directly, but indirectly by means of the environment" (p. 23). By "environment," or the fifth key point to be highlighted in Dewey's (1916 [2012]) philosophy of education situated in and for democracy, he meant the sum total of conditions "that promote or hinder, stimulate or inhibit, the characteristic activities of a living being" (p. 15). That is, just as social environment conditions one's behavior, it can also provide one with the knowledge that "what he does and what he can do depend upon the expectations, demands, approvals, and condemnations of others" (p. 15). Through this socialization process, certain impulses and beliefs within an individual are strengthened, forming gradually mental and emotional dispositions that are shared by others in the environment. Although social environment may function in such a subtle way that we often take it for granted, it "exercises an educative or formative influence unconsciously" so powerful that it determines, according to Dewey, "the main texture of disposition" and the mechanisms by which we think and make decisions at the conscious level (p. 21-23). By contrast, an education that functions only on a conscious level, e.g. direct instruction or formal education, can "hardly do more than convey second-hand information as to what others think" (p. 22). Therefore, for education to be effective in transmitting the habits and dispositions of a society to its youths, it would need to deliberately model itself as an environment that fosters learning not only at the conscious or

conceptual level but also at the subconscious or "unconscious" level through interactions with others.

In the case of an education that is both situated *in* and *for* democracy, the social and learning environment would invariably be collaborative, communicative, and participatory. In such an environment, according to Dewey (1916 [2012]), teaching and learning would be integrated as a "shared activity," in which "the teacher is a learner, and the learner is, without knowing it, the teacher" (p. 172). In other words, in a democratic education, students become *copartners* in learning with their teachers and with each other. Such learning is simultaneously a conjoint activity for creating knowledge rather than merely absorbing knowledge. As students come to share the *mental and emotional dispositions* transmitted through this dynamic and communicative educational environment, they may become more motivated and invested in their learning and absorb, at the same time, the subconscious or implicit knowledge of how to "act, and hence think and feel" (p. 23) like an engaged member of a democratic society.

(1b) Theory Overview: Reflective or Critical Thinking

This emphasis on the individuality and agency of the learner is highlighted not only in Dewey's conception of education as an environment but also in his discussion of what is entailed in developing good thinking habits. Dewey asserts that teaching students how to think well is an essential goal of a democratic education, and he uses the term "reflective thinking" to encapsulate what he means by good thinking. As Dewey's conception of *reflective thinking* or *reflective experience* has been explored extensively in the literature review chapter, the following discussion mentions a few more noteworthy elements about this way of thinking that may

demonstrate the expansive scope by which Dewey prescribed its function and relevance to students' intellectual and personal development—i.e., whole-person development.

First, good thinking or reflective thinking should entail an engaged interaction or experience rather than a mechanical procedure at a shallow, cognitive level. By "experience," Dewey (1916 [2012]) referred to "an active-passive affair" between the person and the context in which that person operates or learns. In the case of reflective thinking, the steps of hypothesizing based on careful observation and evidential consideration "mark off a distinctive reflective experience from one on the trial and error plane" and thus make the thinking an experience (p. 161-162). More specifically, this is because to hypothesize entails testing and asserting one's understanding and design onto the world—the active aspect of the experience—and the undergoing and learning about the consequences of one's action upon the world—the passive aspect that together make up the two passive and active aspects of an experience. As thinking and experience are inextricably connected,[92] according to Dewey, *reflective thinking* can also be called *reflective experience.* As Dewey is considered a key figure or source of inspiration for the critical thinking movement, the connection between thinking and experience emphasized in his conception of *reflective thinking* as *reflective experience* may shed light a more robust conception and application of critical thinking as well.

Second, the emphasis on construction of hypothesis[93] as part of Dewey's conception of reflective thinking or experience seems to suggest a particular epistemological stance or

[92] Thinking and experience are connected for Dewey is because on the one hand, he perceived thinking as "the intentional endeavor to discover specific connections between something we do and the consequences which result, so that the two become continuous" (p. 156); on the other hand, he believed that "no experience having a meaning is possible without some element of thought" (p. 155).
[93] The following quotation from Dewey (1916 [2012]) is already discussed in the literature review chapter; however, for a quick reference of his conception of *reflective thinking or experience* with emphasis on the role of

perception of knowledge. That is, for a person to actively hypothesize and feel confident about this trial and error process and the uncertainty embedded within the adventure, it appears that he or she must first have a certain perception of knowledge as something malleable rather than static—i.e., as a building blocks for construction of new knowledge rather than a body of facts or truths to be merely absorbed. In addition, it may also be argued that this active approach to knowledge as constructions that can be improved upon also suggest certain awareness or assumption of one's agency in *conjoining* or co-constructing knowledge about the world.

Third, this sense of agency embedded in the intellectual disposition for inquiry and hypothesizing connects with the third element of reflective thinking—having aims that are meaningful. In the description of reflective thinking as well as of democratic education at large, Dewey (1916 [2012]) stated that aims cannot be "imposed by some authority external" (p. 112) but must be defined within the process one undertakes the thinking or action. Aims as such emerge out of a careful process of assessing one's situation and of exploring various alternatives, in a similar experimental spirit as described in the reflective thinking. Good aims, therefore, should be contextualized, flexible, and capable of making the entire course of actions meaningful rather than mere means to an end.

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hypothesizing: "They are (i) perplexity, confusion, doubt, due to the fact that one is implicated in an incomplete situation whose full character is not yet determined; (ii) a conjectural anticipation—a tentative interpretation of the given elements, attributing to them a tendency to effect certain consequences; (iii) a careful survey (examination, inspection, exploration, analysis) of all attainable consideration which will define and clarify the problem in hand; (iv) a consequent elaboration of the tentative hypothesis to make it more precise and more consistent, because squaring with a wider range of facts; (v) taking one stand upon the projected hypothesis as a plan of which is applied to the existing state of affairs; doing something overtly to bring about the anticipated result, and thereby testing the hypothesis. It is the extent and accuracy of steps three and four which mark off a distinctive reflective experience from one on the trial and error plane. They make thinking itself into an experience" (p. 161-162).

In a democratic environment where communication fosters engagement and agency, where experiences provide direct material and impetus for thinking, and where thinking creates "the condition of our having aims" (p. 157), reflective thinking connects closely to aims that are of social and political nature, and that are directly relevant to the day-to-day living of its people. As a Pragmatist philosopher—one who emphasizes the consequence of an idea, Dewey specifically advocated *against a spectator theory of knowledge* or knowledge for its own sake but passionately espouses knowledge as a social construction in advancing social progress and democracy. In his 1908 essay titled "The bearings of pragmatism on education," Dewey asserted that the world may be significantly better if researchers and scholars "had been educated into habits of thinking out the bearings of their abstract ideas upon social matters" (p. 1-3). His vision of a democratic education—one that nurtures cooperative communication, values direct experiences, and fosters reflective thinking—can be thus seen as an educational reform that aims to engage students with their environment and "equip individuals to see the moral defects of existing social arrangements and to take an active concern in bettering conditions" (Dewey, 1932, p.123).[94]

In short, a critical thinking education modeled in light of Dewey's holistic vision would nurture a systematic, scientific spirit in the broad sense—one that encourages greater reflection and agency in the way one acquires and improves upon one's knowledge, experience, and aim. It would also emphasize engaged participation and communication, grounded in a humanistic spirit or faith in the potentialities of each individual, that is vital not only for democracy as

[94] The page number is from an unknown secondary source provided in the graduate seminar that contains the original article by Dewey, published in 1932, titled "Address to the National Association for the Advancement of Colored People."

"primarily a mode of associated living, of conjoint communicated experience" (Dewey, 1916 [2012], p. 94), but also for sharing our different perspectives that can also help to improve our self-understanding and knowledge of the world. Therefore, it may be argued that critical thinking education as such would be more than a cognitive, intellectual event; it would be, at the same time, an inextricably moral, social, and political matter.

(2) Application to the Dissertation Research

"The ultimate problem of all education," as Dewey asserted, "is to co-ordinate the psychological and social factors" (quotation from Dewey, cited in Biesta, 2006, p. 29). For this dissertation project, Dewey's philosophy of education and his conception of critical or reflective thinking in particular provides inklings as to how the macro, sociological level forces that transnational Chinese students encounter in their education can be *coordinated* with the micro, psychological dimensions they experience with respect specifically to critical thinking. An understanding of reflective or critical thinking from Dewey's perspective is not only useful for problematizing the dominant, logic-centered approach to critical thinking but also for suggesting a more robust critical thinking pedagogy that takes the contemporary social and psychological forces into account for benefiting students like transnational Chinese students.

In addition, features expounded in Dewey's reflective thinking may be valuable in unpacking transnational Chinese students' experiences and responses to critical thinking in their education abroad. For example, first, as Dewey's concept of *democracy* stresses the social and epistemological aspects or the "communicative and educative," it may be useful for examining whether the environment in which the participants encounter daily is in fact democratic. Dewey

(1939) argued that a politically democratic system may not necessarily foster genuine democratic association, because "[m]erely legal guarantees of the civil liberties of free belief, free expression, free assembly are of little avail if in daily life freedom of communication, the give and take of ideas, facts, experiences, is choked by mutual suspicion, by abuse, by fear and hatred" (p. 228). *What then do students describe of their classroom culture and university environment? What about courses where the size is large and format consists primarily of lecture rather than discussion? What about the quality of education in classes that are smaller and more discussion-oriented; to what extent are students able to develop dispositions essential for critical thinking?*

Second, as Dewey's democracy stresses with respect to communication, which entails a sense of enlarged and educative experiences for both the speaking and receiving sides of a communication, it may help to ask *to what extent is the learning of critical thinking a communicative event for transnational Chinese students? Are these students' perspectives of what constitutes good thinking taken into consideration and instructors of critical thinking (directly or indirectly) are enriched from being cognizant and inclusive of students' needs and concerns?* In other words, to understand participants' learning processes and responses to critical thinking, it may be important to ask whether learning in the classroom is one-way communication or a co-constructive experience.

Third, in cultivating communication that would establish common ground and stronger community, there must be faith, respect, and commitment to the development of individual capacities or "individuality." Such individuality differs oppositely from a narrow vision of individualism; it refers to agency that complements, according to Dewey, the building and widening of a community. In other words, if students are exposed to critical thinking in the

Deweyan sense, then the exposure to this way of thinking would also likely cultivate a greater sense of individuality in the intrapersonal dimension and respect and commitment to community building in the interpersonal dimension. Therefore, it may be worth asking *do students experience substantial or noticeable development in their sense of self and concerns for others?*

Forth, Dewey described critical or reflective thinking as an *experience,* meaning that it has both the passive and active components as exemplified in the process of hypothesizing. Using his concept of experience and hypothesis, we can find out from participants' experiences with learning critical thinking: *to what extent are they encouraged to hypothesize, take agency in developing questions, exploring them, and constructing solutions and actions to solve these questions?* Moreover, as hypothesizing entails a more sophisticated understanding of knowledge, I may ask *to what extent participants' perceptions of knowledge shift and begin to see knowledge and beliefs as constructions that can be improved—a perpetual process that they can initiate or partake?*

Fifth, as Dewey argues that reflective or critical thinking sets the condition for aims that are meaningful, we may also examine *participants' use of critical thinking in the way they construct their learning goals and make important decisions, such as academic majors and career paths*. If their decision-making process entails primarily external forces like dominant opinions and parental pressure, it may reveal a few interrelated possibilities: they may be receiving a fairly technical or narrow version of critical thinking, they may be applying critical thinking in some domains or on certain issues but not others, and/or the external forces may be simply too overpowering and inhibitive for them to apply critical thinking.

Granted, the above building blocks of an education that fosters critical thinking and democratic association were written by Dewey a century ago and probably based on his knowledge of schools in the U.S.[95] Yet as a meticulous thinker and careful observer of his time and the dynamic changes that were taking place in the States, Dewey (1916 [2012]) may have already foreseen the challenges individuals like the numerous new immigrants or transnational Chinese students may face in an increasingly mobile or migratory world and the role education can play in assisting them, when he wrote the following:

> As a person passes from one of the environments to another, he is subjected to antagonistic pulls and is in danger of being split into a being having different standards of judgment and emotion for different occasions. This danger imposes upon the school a steadying and integrating office" (p. 26).

Arguably, Dewey's holistic approach to education seems to be grounded on an empathetic understanding of the needs of students living in a pluralistic yet possibly fragmenting world—echoing Beck's (1994) analysis of late modernity in which the individual is expected to evaluate all kinds of opportunities and risks and make decisions on their own, when "the self is no longer just the unequivocal self but has become fragmented into contradictory discourses of the self" (p. 8). Therefore, adopting Dewey's theory of education may be particularly apt for understanding transnational Chinese students' educational experiences with critical thinking and its possible role in better coordinating and reconfiguring the dynamic between the social and the psychological, or the societal and the individual.

[95] After the publication of *Democracy and Education* in 1916, Dewey did travel extensively to East Asia for a number of years. His extended visit and lecture tour in China (1919-1921) left a deep impression on the Chinese intellectuals at the wake of the May Fourth Movement and the New Culture Movement (Wang, 2012).

III. Conclusion

In short, the interdisciplinary theoretical framework discussed above is designed to both reflect the dissertation's empirical and conceptual interests and to address a knowledge gap in the literature that suggests a lack of in-depth qualitative studies using holistic frameworks on the topic of Chinese students' learning experiences with critical thinking (Heng, 2016; Tian & Low, 2011).

More specifically, the sociological lens provides a macro-level picture of the larger global/transnational context in which the participants' experiences take place, offering explanation to the kinds of decisions and dilemmas they face individually as part of systematic challenges embedded in late modernity—a knowledge-centered, multi-temporal era that can be profoundly liberating yet confounding for the individual, perhaps particularly for those who frequently traverse different physical, social, and cultural spaces. By contrast, the psychological lens offers a micro-level understanding of how students' cognitive or critical thinking development may be interconnected with their development in other two dimensions—i.e., the intrapersonal and interpersonal—which are not typically considered in the dominant, logic-centered approach to teaching of critical thinking. While the sociological and psychological theories shed light on the nature of our times and the structure of our meaning-making mechanism, it may be argued that education, as Dewey envisioned, can be a vital space or venue to better "co-ordinate" or channel the social demands and the psychological needs. Therefore, the philosophical lens, drawn from Dewey's theory of education, may offer not only a richer conception of critical thinking as part and parcel of a democratic way of life but also a deeper understanding of how the cultivation of critical or reflective thinking as such can be an integrating

force for the self and a reflective force that is urgently needed for directing our knowledge-intensive, rapidly changing, yet pervasively uncertain late modern era.

As partially demonstrated in the application of theory to dissertation research subsection within the discussion of each theory above, the three theories or disciplinary perspectives shape the breadth of this dissertation project by expanding the scope of questions I would explore with the participants. In addition, as will become evident in the rest of the chapters, particularly the conclusion chapter, the theories also enrich the interpretative strength of the dissertation by helping to connect the different parts of these students' experiences—which may at first seem disparate and mundane—and offer insights into the deeper psychological, sociological, and educational significance of these time- or context-specific yet thematically universal human experiences.

The table or conceptual mapping on the next page demonstrates the connection between research questions/sub-questions, theoretical framework (concepts from each theory highlighted in varying shades of green), and the discussion topics covered in the semi-structured interviews or data collection:

Research Questions (& sub-questions)	**Questionnaire/Interview Topics** (Data Collection & Sources)	**Theoretical Framework** (Key Concepts Informing Data Collection & Analysis)
II. (Analytical) **RQ2. WHY do participants respond (about CT) the way they do?** (1) What contextual (social, personal, educational) factors shape their CT development and responses? (2) Vice versa, how did CT play a role, if any, in participants' cross-cultural experiences?	**1a. Education in China**	**SOCIOLOGICAL** **"Late/Reflexive-modernity"** • Pre-modern, Modern, Late-modern/Postmodern elements -- role of knowledge/expertise -- role of tradition -- doubt, risks/dilemmas • Globalization (neoliberalism) -- aspirations, citizenship, mobility • Individualization -- Dis-/re-embedment -- De-/re-constructed -- choice/DYI biography
	1b. Education in the U.S.	
	1c. Chinese vs. American Education	
	1d. Chinese vs. American Socio-cultural Environment	
	1e. Stay in the U.S. or return to China	
	2a. Challenges	**PSYCHOLOGICAL** **"Self-authorship"** • 3-dimensional model -- Cognitive domain -- Intrapersonal domain -- Interpersonal domain • Development in sync • "Optimal dissonance" -- Cognitive priority • Contextualization -- Meaning-making ability • 4 stages of development -- follow external authority -- cross-road -- becoming -- internal foundation
	2b. Attitudes toward challenges	
	2c. Changes	
	2d. Decision-making	
	2e. Epistemological stance	
	2f. Notable Courses (or other academic/intellectual resources)	
	2g. Familial Dynamic	
	2h. Social Support	
I. (Empirical) **RQ1. WHAT are participants' experiences and perspectives of critical thinking ?**	**3a. CT Acquisition** (Exposure, Process, Environment)	**PHILOSOPHICAL** **"Reflective Thinking"** • Reflective/Scientific Method --observe & hypothesize/experiment • What CT Is -- Condition, function, purpose • Democratic characteristics -- individuality + enlarged social concern • Communication -- change &broadening of both • Experience -- external + internal conditions/needs • Environment • Growth/Control ⇒ freedom
	3b. Self-evaluation of one's own CT (Comprehension level, Importance, Usage frequency, response to Ennis' CT list)	
	3c. CT Conception (Definition, Universal/Specific)	
	3d. CT Application (in Academia) (STEM, SS, HUM.)	
	3e. CT Application (in everyday life) (Intrapersonal, Interpersonal, Political)	
III. (Conceptual) **RQ3. HOW might participants' voice contribute to a reconceptualization of CT for the global age?**	**Participant's Comments**	**LITERATURE REVIEW/Central Debates** • Universal vs. Culturally Specific -- "conceptual colonization" • Weak vs. Strong CT -- purpose of CT • "Re-description" -- CT education for the global age
	Data Analysis & Literature Review	
	Theoretical framework (sociological, psychological, and philosophical analysis)	

Table 2. Alignment between the dissertation's research questions and theoretical framework

Chapter 4. Research Method

I. CHOICE OF RESEARCH METHODOLOGY

Sharan Merriam (1998), a notable scholar on qualitative research methodologies in education and on the case study approach in particular, stated that the design of a case study is chosen by researchers who are "interested in insight, discovery, and interpretation rather than hypothesis testing" (p. 28). She then described the anticipated outcome of case study research: "By concentrating on a single phenomenon or entity (the case), the researcher aims to uncover the interaction of significant factors characteristic of the phenomenon. The case study focuses on holistic description and explanation" (p. 29). As the aim of this dissertation is to closely examine factors that shape the experiences and perspectives of transnational Chinese undergraduates vis-à-vis critical thinking at an elite or R1 university, it seems to fit the general criteria for a qualitative case study. Yet what constitutes "a qualitative case study" or how it should be done is a contested topic among case study researchers. Therefore, in this section, I will first discuss the methodological approach, before proceeding to explain my research as a case study.

According to Merriam (2009), "the most distinguishing feature of a case study lies in "delimiting the object of study" or the *what* that is to be studied can be "fenced in" (p. 40). Therefore, she defined a case study as "an in-depth description and analysis of a bounded system," in which "a bounded system" refers to "a single entity, a unit around which there are boundaries" (p. 40). Examples of such a case or a bounded system can be "a single person who is a case example of some phenomenon, a program, a group, an institution, a community, or a

specific policy" (p. 40). In other words, in Merriam's description, case study research is distinguished from other types of qualitative research (e.g., ethnographic research, narrative analysis, grounded theory approach) by "the unit of analysis" (i.e., a particular and finite case), rather than by "the focus of the study" (e.g., emphasis on society and culture, as typical of ethnography) or by "any particular methods for data collection and analysis." In addition, case study may be particularly flexible research approach in terms of the methods that can be used: "Unlike experimental, survey, or historical research, case study does not claim any particular methods for data collection or data analysis. Any and all methods of gathering data, from testing to interviewing, can be used in a case study" (p. 42)

Although Merriam (2009) believed that her definition of a qualitative case study is "congruent with other definitions" (p. 43), she recognized that no consensus has been reached among scholars on how "a case study research" should be practiced or what it should entail. While some, like herself, defined it in terms of the unit of analysis, others described it with respect to its research process and method. One scholar Merriam cited was John Cresswell (2007), who offered a more detailed or specific description of what a case study should entail or how it should be done: "the investigator explores a bounded system (a *case*) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving *multiple sources of information* (e.g., observations, interviews, audiovisual material, and documents and reports), and reports a case *description* and case-based themes" (as cited in Merriam, 2009, p. 43).

In a similar manner, another notable scholar on case study research, Robert Yin, also stressed the importance of collecting multiple sources of data in the case study research process. Yin (2018) argued for this more methodologically specific approach to case study research from

at least three different angles. First, he asserted that as *systemic/research case studies* are often conflated with *informal/non-research case studies* (used prevalently as a form of exposition in popular media), it behooves researchers to approach case studies "with a higher set of expectations," i.e., as a "formal research method" (p. 24). Second, Yin proposed that "the basic motive for doing a case study in the first place: to do an in-depth study of a phenomenon in its real-world context" (p. 189) calls for a variety of data (e.g., interviews, documents, and observations) to ensure a comprehensive understanding of the complex phenomenon and its context under examination. Third, he explained that using multiple sources of data as evidence will help "develop converging lines of inquiry" and render research findings "more convincing and accurate" (p. 189). That is, if data from different sources all converge or point to the same conclusion, then it may be more trustworthy. This validity-enhancing reasoning or data convergence idea is also known as a type of "triangulation" strategy, of which there are several other types—i.e., triangulation via multiple methods/methodologies, multiple investigators, and/or multiple theories (Merriam, 2009; Yin, 2018).

In short, what Merriam (1998, 2009) described as different ways of defining "case study" (e.g., via unit or process) may be, for other scholars like Yin, a strict matter of methodological rigor that should be highlighted and practiced in case study research.[96] Yet as Merriam wrote

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[96] The varied methodological specificity among these case study researchers may be undergirded in part by each researcher's prior disciplinary background and/or philosophical orientation. Merriam (2009) listed four different philosophical orientations or positions, each with its own understanding of the nature of reality (ontology) and of knowledge (epistemology): i.e., positivist, interpretative, critical, and postmodern. She also explained how each philosophical orientation may engender a different type of research design (p. 7-13). Some scholars, particularly those using quantitative research methods, for example, tend to adopt a positivist orientation or logical empiricism that, according to Patton (2002), "seeks unity in science…and asserts that there are no fundamental methodological differences between natural and social sciences" (as cited in Merriam, 2009, p. 8).

As education is a field of study rather than a discipline (e.g., math, literature, sociology), educational researchers may have had one or several type(s) of disciplinary training prior to becoming scholars in education. Scholars like Yin (Ph.D. in brain and cognitive sciences from MIT), who have had extensive training in the sciences, may

extensively on various triangulation strategies, emphasizing also the importance of creating reliable and trustworthy knowledge via qualitative research, it is apparent that research validity/trustworthiness and reliability/rigor are shared concerns among all of these qualitative scholars. Moreover, while collecting multiple sources of data, as strongly advocated by Cresswell and Yin, may be ideal for a case study research, it is one of the triangulation technique—i.e., not the only way to enhance its research validity. Therefore, it may be argued that what ultimately distinguish their different conceptions of "case study research" lies not so much in the quest for methodological rigor as in the demand on methodological specificity—i.e., the extent to which a good qualitative case study *has* to entail different methods and sources of data collection for the purpose of valid research conclusion.

In light of the divergent views on what a quality case study is or how it should be done, I will now proceed to discuss my dissertation as a qualitative case study. The research project was initially designed as a small-scale case study in the strict or specific sense, as envisioned by Yin and Cresswell. The plan was that I would examine closely the experiences and perspectives of 8-10 participants over a full year vis-à-vis critical thinking in the context of their overall development. I would do so by collecting data via various methods and sources: i.e., online questionnaire, semi-structured interview, document (course syllabus and assignment) analysis, and classroom and extracurricular activity observation. The estimated size of the study was

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understandably advocate case study research in a more specific/scientific way—i.e., as a "formal research method" that needs to be applied methodically. As the noted psychologist Donald Campbell wrote in the forward of Yin's 2018 book: "Given Robert Yin's background… his insistence that the case study method be done in conformity with science's goal and methods is perhaps not surprising" (p. 16).

informed by the challenge I had encountered in recruiting students for the pilot study prior to the dissertation research (see more discussion in the following "data collection" section).

However, once the research project was formally approved by the institutional review board (IRB), I was able to use the service at the registrar's office, which facilitated a mass email recruitment of my study to all Chinese undergraduates at the university. As a result, even though only 3% of the total Chinese undergraduate population responded to my email, expressing potential interest in the study, the actual participant pool of the study turned out to be much bigger than anticipated—i.e., more than three times the planned size. Forty-four students responded to the online questionnaire, of which 35 participated in the first interview and 31 completed the second interview as well.

Further sampling strategies were considered to reduce the size of the participant pool: e.g., *purposeful sampling* by "selecting *information-rich* cases for study in depth" (quotation from Patton, cited in Merriam, 2009, p. 77) and *probability sampling* by selecting at random one or two students from each of the major characteristics considered in the study (e.g., year of study in college, gender, academic discipline, immigration status, familial background, etc.). These strategies, however, were not used ultimately in the data collection stage for the following reasons. First, there is a lack of in-depth studies on transnational or international Chinese students vis-à-vis critical thinking, as indicated in the literature review. Second, as the study is interested in exploring various characteristics/factors that may impact students' acquisition and application of critical thinking, it calls for a sizable participant population to demonstrate these variations. Third, there is no quick answer on the size of a case study research—i.e., even though case studies tend to be small, these in-depth studies can range from one individual/group to

several dozens of participants within a bounded system or context). According to Merriam (2009), the size may be determined by collecting or "sampling until a point of saturation or redundancy is reached" (p. 80). As data saturation for this dissertation research was not apparent after the first round of interview, I proceeded to interview almost all the participants for the second round.

Therefore, for a period of time, I was collecting data via various methods and sources (see more details in the "data collection" section), while expanding the participant pool for interviews. However, as the research unfolded over an academic year, a number of unexpected physical and time constrains emerged, which affected the data collection as initially planned.[97] In addition, by the time I finished the two rounds of interviews, it seemed that a substantial amount of information had been gathered from the students for a dissertation project. In other words, data collected for this research turned out to consist primarily of a detailed online questionnaire and two rounds of semi-structured interviews.

As such, this dissertation may not align perfectly with the more structured definition of a case study research proposed by Cresswell and Yin, which pays particular attention to the importance of collecting substantial amounts of data from multiple sources. I would argue, however, that the dissertation research still constitutes a case study, for the following reasons. First of all, the project contains the essential features of a case study described by Merriam

[97] During the first stage of data collection, an unexpected large amount of time was spent on my TA responsibilities for an undergraduate course, which included teaching three discussion sessions and grading assignments and tests for about 70 students. In the second half of the data collection stage, a foot injury prevented me from moving for some time and thus on-site observations as planned. The physical challenge was compounded by additional responsibility later, when a family member became terminally ill and needed care. While none of these should be "excuses" to have inhibited me from executing a case study in the strict or ideal sense as planned, they did add constraints that I want to mention here for the purpose of being candid and transparent about my research process and challenges.

(2009): it explores a phenomenon (i.e., the learning experiences of critical thinking) within a bounded system or context (i.e., of a group of Chinese students abroad at a research-intensive university in the U.S.); it asks in-depth questions typical of a case study research—i.e., "how" (e.g., how did the students learn and apply critical thinking) and "why" (e.g., why did some demonstrate a considerable higher level of understanding and application of critical thinking than others); it delivers a "thick" description and explanation of the phenomenon under research. The following descriptions from Merriam and Stake of the *heuristic* nature of case studies seems to capture the quality of writing that this dissertation aims to achieve: "They [case studies] can bring about the discover of new meaning, extend the reader's experience, or confirm what is known. 'Previously unknown relationships and variables can be expected to emerge from case studies leading to a rethinking of the phenomenon being studied. Insights into how things get to be the way they are can be expected to result from case studies' (Stake, 1981, p. 47)" (Merriam, 2009, p. 44).

Secondly, even Yin (2018) permitted some ambiguity or flexibility in terms of how "multiple" (of data sources) can be defined. He mentioned that in certain kinds of case studies, where "the phenomenon of interest may be a participant's distinctive meaning or perspective… you should at a minimum have queried the same participant several times or on several occasions—which would then serve in its own way as a set of 'multiple' sources" (p. 191). According to this description, the different rounds of interview data gathered over an academic year in my research process may be considered having also collected "multiple" sources of data. In addition, other sources of evidence were collected along the way, albeit not to the same extent as the interview data (see more discussion in the "data collection" section), and "cognitive tasks"

(e.g. case scenarios presented to participants in order to solicit their responses or thinking process) were built into the semi-structured interviews to gather not only *what* students say about their experiences and perspectives but also to observe or uncover *how* they think and apply critical thinking. Therefore, the dissertation may arguably meet the narrower criteria for a case study defined by Yin as well.

Lastly, according to Yin (2018), the purpose for collecting various sources of data—collected via interview, survey, observation, and/or, document analysis—is not only for research validity, but also for better interpretation of the context within which the studied phenomenon takes place. As it will become clearer in the following sections, along with the online questionnaire and interview protocol (see Appendixes II & III), a substantial amount of information collected from the questionnaire and interviews focused on the complex cross-cultural background or context (e.g. students' familial and educational environment in China and/or in the U.S.) that framed, in many ways, participants' learning experiences and perspectives vis-à-vis critical thinking. Moreover, many of these students mentioned that their participation in the research was largely motivated by having "a space to reflect" on their educational journey abroad and/or share experiences in-depth—i.e., in a way that they "have not been able to in casual conversations, even among friends." Perhaps an interview-centered approach to this case study may have ultimately made sense for examining cross-cultural perspectives and experiences that are not readily observable or even articulable in normal circumstances.

II. SAMPLING POPULATION & SITE

This dissertation project focuses on transnational Chinese undergraduate students in the United States. I borrowed the terms "transnational" and "transnational Chinese students" from Vanessa Fong's book *Paradise Redefined* (2012), in which she defined them respectively as "anyone who crosses a border between two countries" (p. 36) and "current or former Chinese citizens in my study who have ever taken classes outside China" (p. 35). While this dissertation also aims to capture the fast changing and diverse nature of this migrant student population from China, it does not include "former Chinese citizens" as mentioned in Fong's research due to sampling constrains (via the university registrar system, see details in the "data collection" section). Nevertheless, the transnational Chinese undergraduate population presented in this research does include a wide array of migration or immigration statuses: e.g., students with immigrant status (or "green card" holders), "parachute" students (those who started studying abroad before college, on their own or without direct parental supervision), and the more typical "international Chinese undergraduates" who came to the U.S. after completion of high school education in China. In other words,

Another terminological issue to note is that as this dissertation is interested in undergraduate education and students, the terms "transnational Chinese students" and "transnational Chinese undergraduates" are used interchangeably in the writing. The research rationale for studying undergraduate Chinese students abroad consists of the following reasons. First, while 41.3% of the total Chinese students in the United States are pursuing undergraduate degrees, in comparison to 37.5% at the graduate level (IIE *Open Doors* Report 2016), the fast growing undergraduate population from China is a relatively recent phenomenon; therefore,

more studies have been done in the past on the graduate and post-graduate populations (Heng, 2016). Second, literature on student development demonstrated that the transition to college can be a "personally and psychologically disruptive" experience even for domestic students, because moving away from one's family and community of origin can also mean, to various extent, that one's "social support networks from which they have previously drawn their knowledge, attitudes, and skills are significantly disrupted" (Renn, 2012, p. 64-65). While the transition to a new physical and social environment may constitute the initial challenges for college students in general, a more fundamental challenge takes place in "acquiring (often times) different set of knowledge, attitudes, and skills necessary to succeed in college" (Renn, 2012, p. 65). And acquisition of such new ideas and ways of thinking and being may play a significant role for students in this active period of transition and change—i.e., as "they are actively experimenting with and consolidating a sense of identity: who they are, what they can do well, what is important to them, how they want others to see them" (King & Kitchener, 1994, p. 203). In short, given the formative nature of the undergraduate experience, the relationship between the fostering of critical thinking (entailing certain abilities and dispositions) in American higher education and students' overall development may be particularly worth exploring, as we consider the experiences, challenges, and trajectories of transnational Chinese undergraduates.

The research took place at a large research university on the west coast, which will henceforth be referred to as WCRU. The location is ideal for the study, because it has a sizable transnational Chinese undergraduate population (i.e., close to two thousand students with Chinese passports) enrolled at the institution. Moreover, as a well-funded research university, WCRU offers numerous programs and resources that aim to facilitate student success and a

variety of academic disciplines in the humanities, social sciences, and the sciences that are ranked at the top of their respective fields. Although WCRU is not a liberal arts college—typically known for its small classes and intimate settings that may be ideal for fostering communication and critical thinking—it does have undergraduate writing courses and smaller upper-division classes in the humanities and social sciences that are designed to facilitate participation and learning equivalent to liberal arts colleges. In other words, the range of different disciplines and courses offered at WCRU is well situated for examining how critical thinking might be fostered and applied in varied educational settings. Furthermore, as a quarter of the undergraduate population at WCRU consists of transfer students from community colleges and other institutions, the site provides a wide spectrum of student backgrounds vis-a-vis prior education, life experiences, socioeconomic background, among others. Therefore, even though WCRU may be unique in its own ways, it contains a range of institutional characteristics and a diverse student body that may offer rich data sources for understanding how students like transnational Chinese undergraduates learned critical thinking, how various background factors impact their critical thinking acquisition and applications, and how critical thinking played (or not) a role in their learning and overall development.

III. DATA COLLECTION

A pilot study was done prior to the dissertation research. It was conducted as a part of a course requirement for a class I took on qualitative interviewing techniques. Due to time constraints and limited resources available for recruitment at the time, I was only able to find one undergraduate (a transfer student), through a mutual friend, who was willing to participate

in the interview. This student, however, introduced me to five other community college students, some of whom were about to transfer to WCRU and most of whom were native Chinese speakers.[98] Even though I was not able to interview them in person, they responded to a comprehensive online questionnaire and follow-up email inquiries. The pilot study experience left me with an impression that it might be challenging to recruit Chinese undergraduates for the study, which impacted the initial design of the study as a small qualitative case study. At the same time, the pilot study also provided me with an opportunity to gain a better sense of the potential participant pool, to make adjustments to the research questionnaire and interview questions, and to be more prepared for the formal study. As three of the pilot study participants were Chinese citizens, they also participated in the later data collection or research interviews.

Two more participants would later join the study through this "snowball, chain, or network sampling" technique (Merriam, 2009, p. 79)—i.e., in which earlier participants refer (voluntarily, in these particular cases) others to join the study. However, most students in this research were recruited through a mass email or research invitation facilitated by the university registrar's office, after the project was formally approved by the IRB office. Even though the study intended to capture a wider range of "transnational Chinese students" in the sense that Fong described—i.e., including "current and former Chinese citizens"—the registrar's office was only able to send the research invitation email to current Chinese citizens or students with passport from mainland China. Therefore, the eventual pool of participants in the study does not include former Chinese citizens or naturalized Chinese-Americans; nor does it include students

[98] A couple of these Chinese speakers were from Taiwan. Out of curiosity and due to the small number of willing participants and my interest in expanding the research in the future to include a greater diversity of students, I included these students from Taiwan in the pilot study. They were not included in the later dissertation study.

from Hong Kong who carry a different type of passport (in spite of their Chinese citizenship status).[99] In other words, the research population or "transnational Chinese students" in this dissertation refers to undergraduate Chinese students at WCRU who are current Chinese citizens from mainland China. And these basic characteristics—i.e., eligible participants must be (1) undergraduates at students WCRU, who are (2) current Chinese citizens from mainland China—constituted the criteria for the study's purposeful or criterion-based sampling.

As mentioned in the previous section, about 60 students replied to the email invitation, either inquiring about the study or expressing interest in becoming a participant. Forty-four of these students completed the online questionnaire, which covered a broad range of topics, including basic demographic information, educational background and experiences abroad, as well as students' learning processes and perceptions of critical thinking. In addition, the questionnaire included a cognitive task, which entailed a decisional-dilemma that many transnational Chinese students might be able to relate to—i.e., deciding on an academic major in which one's choice or selection criteria conflict with his/her parents'. Participants were asked to respond to a few questions related to the dilemma as a way to observe their actual decision-making or problem-solving process and uncover their epistemic stance (see more detailed explanation in Appendix II). The use of cognitive tasks or scenarios is prevalent in cognitive

[99] Although I had not intended to exclude students from Hong Kong from the study, when I reached out to the university registrar's office with a mass mailing request, the office automatically understood my research interest in "Chinese undergraduate students" as to mean undergraduate students from mainland China or with a Chinese passport. I did not realize this "miscommunication" until later in the data collection stage; by then, I had more participants responding to the research than anticipated. In addition, as studies on transnational/international Chinese students typically refer to students from mainland China, I did not send another request to the registrar's office to specifically include students from Hong Kong. That would have been an interesting addition to the research; however, given the markedly different sociopolitical environment and educational system between Hong Kong and mainland China, the Hong Kong student population may warrant a separate or affiliated research project.

psychology interviews or research, as an alternative and potentially more effective way (as oppose to direct questioning) to understand participants' cognitive processes (diSessa, 2007; Ginsburg, 1997). The idea of presenting participants with a decision-dilemma or an "ill-defined question" (one that does not yield to easy answers or simple logical solutions) was drawn largely from King and Kitchener's research (1994) on "reflective judgment"—or what other scholars referred to as a more robust version of "critical thinking" (see detailed discussion in the literature review chapter). Depending on the way students responded to this comprehensive online questionnaire, ranging from brief to thorough, the task could take some time to complete (see more discussion in the research limitation section).

The two semi-structured interviews that ensued from the online questionnaire functioned as opportunities to follow-up with the participants on their earlier responses and to further explore the central topic of critical thinking in the context of students' overall cross-cultural development. The protocol for the first interview followed the order of questions listed in the questionnaire, which asked extensively about students' background, experiences abroad, and academic major, before delving into the more specific questions on their learning process and perception of critical thinking. The order of the questions was designed to gradually ease the participants into the interview and a topic (i.e., critical thinking) that can be abstract and thus difficult to explore without context. In addition, due to the philosophical and psychological theoretical framework used in this dissertation—i.e., Dewey's theory of education situated in and for democratic association and Baxter Magolda's theory of self-authorship that highlights a 3-dimensional developmental model—a wide of range of questions were asked around or beyond critical thinking for the purpose of uncovering existing relation, if any, between the acquisition

of critical thinking and students' overall development in the epistemological, intrapersonal, and interpersonal dimensions.

While 35 students participated in the first interview that took place in the fall or beginning of the academic year (except for two participants who joined in later), 31 students continued on with the second interview in the following spring or end of that academic year.[100] Similar to the first, the second interview also served as an opportunity to clarify responses participants had provided previously and to more deeply explore the themes of critical thinking and cross-cultural selfhood (a general protocol for the second interview in Appendix III). The two interviews differ in that while the first centered around participants' learning process and perception of critical thinking and their educational background and past experiences, the second focused on participants' applications of critical thinking across the domains and their changes, if any, in how they related to others and perceived themselves as individuals straddling two cultures.

The idea of conducting the second interview about half a year apart from the first was to observe, if possible, the changes that students might experience over time in terms of their critical thinking and overall development. This semi-longitudinal design might be particularly relevant for lower-division students (freshmen and sophomores), because adjustment challenges are more likely to take place in the early part of one's college career, and the effects of these educational experiences, e.g., exposure to diversity and critical thinking, may take time to emerge and be recognized. In addition, another cognitive task—i.e., a list of critical thinking skills and

[100] Two participants from the first interview were short-term exchange students from a university in China and did not stay long enough at WCRU to participate in the second interview. Two other students who did not participate in the second interview did so out of voluntary choice.

dispositions drawn from Robert Ennis' work—was given to participants at the end of the interview for self-evaluation of their critical thinking abilities.

Overall, the interlocking connection between the two interviews and between the interviews and comprehensive online questionnaire created a 3-round structure similar to the "three-interview series" mentioned by Seidman (2013, p. 20-23), which is designed to provide more in-depth understanding of the participants and triangulation/cross-checking of their various accounts. Additional triangulation strategies were also used in the questionnaire and interviews via incorporating cognitive tasks for uncovering students' actual thinking process and via having participants describe their critical thinking applications across domains, which can be used to compare and contrast to what they say about their critical thinking conceptions and processes.

Along the way, I also gathered other data sources to enhance the case study's research validity. In terms of documents, for example, I obtained reports from the registrar's office pertaining to all transnational Chinese undergraduates' academic majors and GPAs at WCRU. As the research captured about 2% of the total student population at the university (i.e., those with Chinese passports from mainland China), data from the registrar's can provide additional information about this relatively small group of self-selected participants within a much larger student group. I also obtained a dozen course syllabi from first-year college writing classes, because numerous participants mentioned these as sites where they had first learned, or were most likely to have applied, critical thinking. A request for writing samples was made to some participants in the first interview; however, only one participant volunteered with a course paper that was chosen to demonstrate her critical thinking in the context of academic writing.

In terms of observations, I attended some social events, a general election held by the Chinese Student and Scholar Association on campus, and a number of undergraduate courses in writing, communication, comparative literature, and philosophy. Although I was not able to follow the participants into some of their classrooms and speak with their instructors, I conducted two formal interviews with instructors who were teaching undergraduate courses in the humanities and asked them specifically about their teaching philosophy on critical thinking. In addition, I had my own undergraduate teaching experiences to lean on for general information about undergraduate education and academic expectations, along with numerous informal conversations with fellow graduate students about their undergraduate teaching in the humanities and social sciences.

In short, even though data collection from these other sources was not as systematic as the collection of data from the online questionnaire and in-person interviews, a substantial amount of information was gathered to provide an overall understanding of the environment at WCRU. Such information, collected via documents and observations, also created another form of data triangulation that cross-checks participants' direct accounts of their educational experiences and environment vis-à-vis critical thinking development.

IV. DATA ANALYSIS

Data analysis began as soon as data collection started; however, this aspect of the research took three stages to complete. While coding and analytical methods varied in each stage, they were also built upon or informed by the work done in the prior stage(s).

1. First Stage: Initial Analysis

In the preliminary stage, I used Dedoose, an online software, to analyze all of the online questionnaire data. Once I uploaded all of the student responses, I organized the data by using "structural coding," which is explained by Saldaña (2013) as a data analysis strategy that "applies a content-based or conceptual phrase representing a topic of inquiry to a segment of data that relates to a specific research question used to frame the interview"(p. 84). Saldaña also described *structural coding* as "a labeling and indexing device" (p. 84) that is particularly suitable for qualitative studies that entail numerous participants and lean heavily on structured or semi-structured interviews as the primary data sources. In other words, structural codes are closely aligned with the questions posed in the interviews or data collection. The idea of indexing or collecting the similarly coded segments from the multiple participants is useful for quick access to all of the data that might be most relevant to a research question or topic of analysis.

Structural coding worked in my data analysis in the following way. For example, in the data collection (online questionnaire and interviews), participants were asked to describe which challenges, if any, they had encountered abroad; consequently, a structural code titled "challenges abroad" was created in Dedoose that collected the responses addressing this question or code. Later, these coded segments would be analyzed via a more detailed round of coding in which the various challenges mentioned by participants were further indexed under sub-codes, e.g., "language challenge," "time-management," and "lack of background knowledge or cultural context." This process helped me to discover that in spite of the literature's claims, "critical thinking" may not be the most difficult or "paradigmatic" challenge for this young generation of transnational Chinese students. At the very least, it is not the paradigmatic

challenge for this particular group captured in the study. Surprising findings like this then called for further exploration and explanation, which were recorded regularly as analytic memos and which helped to shape focal points in later data collection and analysis.

In addition to *structural coding*, I applied "attributive coding" to organize participants' "basic descriptive information" (Saldaña, 2013, p. 70), such as their demographics, academic major, and year in college. Whenever appropriate, I also applied "magnitude coding," also known as "weighted coding," to a number of these descriptors or attributive codes, such as "participant's prior educational background" (e.g., traditional Chinese high school, international school in China, high school abroad) "familial social economic status" (e.g., low, middle, or high SES), and "transnational status" (e.g., immigrant, parachute, or international). *Magnitude coding* is an analytical approach that "consists of and adds a supplemental alphanumeric or symbolic code or subcode to an existing coded datum or category to indicate its intensity, frequency, direction, presence, or evaluative content" (Saldaña, 2013, p. 72-73). *Magnitude coding* enables better recognition of patterns of association or factors that might have contributed to students' acquisition and application of critical thinking.

In this preliminary stage of data analysis, which was taking place in sync with data collection, I also listened to the recorded interview data multiple times over, transcribed the interviews by hand first, and then proceeded to transcribe verbatim the most relevant sections of those interviews. The idea of this speedy initial review process was to uncover repeated patterns and themes that were emerging from the data, which could then be explored further and/or verified with the participants in later interviews. For example, participants frequently mentioned the importance of their relationships with their parents; these relationships could be

supportive or inhibitive way to each student's decision-making. Therefore, in the second interview, I asked participants about their parental educational and professional backgrounds, parent-child relationship, and family dynamic to further understand the possible role of parental influence in shaping students' overall sense of self and critical thinking development.

Once the 31 full sets of interview data were collected, I created an individual file for each participant, which contained all of the data sources from each individual stored as separate documents. In addition, I constructed a combined document or case report on each participant that included all of his or her questionnaire and interview responses in one place; the combined data was then organized via "structural coding" as explained previously. Similar to the prior application of structural coding (i.e., just on the online questionnaire data), the purpose here is to prepare for further coding and analysis of a particular topic across the numerous cases. Unlike the previous instance with limited data, however, the structural codes created to organize the rich amount of data for each case were more detailed and expansive. For example, I noticed in the interviews that when describing the various challenges they faced abroad, students also exhibited varied types of attitudes toward challenges, ranging from "I want to change [the feeling of social isolation abroad] but since I don't know how, I just let whatever will happen happen" to "[I would] consciously remind myself of things [new and examined position] or the way of thinking that I have come to believe [until it became a second nature to me]." Henceforth, in the case reports, there would be a new code, "attitude toward challenges," which was not part of the direct interview questions but emerged from participants' responses.

In addition to indexing the data from all of the participants, the case reports also included analytical memos and research reflections I wrote while transcribing and organizing the data sets.

A typical case report, for example, would include the following sections: "key findings," "notable characteristics of the participant," "remaining questions" (to member-check with the participant or examine closely in the data), and "use for dissertation" (i.e., ideas on how salient information from each case may be situated and used in the larger dissertation analysis). The comprehensive case report was constructed to facilitate access to an in-depth and holistic understanding of students' overall experiences abroad and their perspectives and applications of critical thinking in particular.

This case report or case-by-case approach was then balanced by a more sweeping approach in which all of the key information from the individual cases was transported into an Excel document from which I could track general patterns across the cases. While the columns in the Excel document reflected the structural codes in the case reports (i.e., one code per column), the rows in the Excel document captured participants' responses in summary form (i.e., one participant per row). I then color coded (similar to "magnitude coding" as explained previously) each coded or summarized segment for a quick view of the patterns that might be emerging across the columns. For example, in exploring participants' learning processes on critical thinking, I asked them about the time frame in which they were first exposed to the concept "critical thinking" and began to develop the ability to think critically. For self-reported or estimated responses of "college" as the starting point, I colored yellow; "high school" or "middle school or prior," varying shades of green; and "informally on one's own prior to secondary education," yellow. This coloring or magnitude coding approach gave an immediate visual understanding of the pattern in each column—e.g., in the column of "when did the acquisition of critical thinking begin," only a few blocks of data were colored yellow, indicating that most

students had acquired some forms of critical thinking prior to college, which might explain to an extent why critical thinking was not described as a new or prominent challenge as the literature seems to suggest. In addition, as I kept improving or updating the Excel document in the second stage of in-depth data analysis, this color coding approach became an accessible, visual, and flexible way to move around the data (i.e., columns/codes and rows/participants or cases) for pattern recognitions in the third stage of data analysis, which will be discussed later. Using the Excel document proved to be an advantage as the later data analyses were done most often in Word and Excel, rather than Dedoose.

Due to the extensive nature of the case reports[101] and time constraints, I reduced the data size by focusing only on the 20 junior and senior respondents for this dissertation and leaving out the 11 freshmen and sophomores for the time being. The rationale for focusing on the upper-division students is two-fold. First, the juniors and seniors in this study captured a more diverse transnational Chinese student population—both in terms of their transnational status (e.g., more immigrant students) and previous educational experiences in the U.S. (e.g., students of community college background, of which there were none in the lower-division population). Second, while the freshman and sophomore students may experience numerous adjustment challenges in their first year or two of studying abroad, the effects of some of these educational and cross-cultural experiences, such as the exposure to diversity, new values and practices, as well as a more socio-politically conscious form of critical thinking, may take time to manifest or may not emerge until a later stage of their learning and development. My own experience as a

[101] The case reports ranged from 12 to 34 pages long, depending on the amount of data collected from the participants (e.g. I had three interviews with Claire, Dio and Hanna, so their reports were the longest) and analytical memos I wrote in reflection of the data.

transnational Chinese student and my knowledge of other transnational students seemed to reflect this gradual development and effect of critical thinking, particularly in the intrapersonal and interpersonal domains. In addition, having gone through most of the college journey, upper-division students may offer a more comprehensive view of how their critical thinking abilities had been developed and applied in shaping, or not, the decisions and changes they experienced abroad.

After this initial stage of data analysis, I was able to make a number of general observations about the study population and their experiences and perspectives on critical thinking. For example, from participants' descriptions of their educational background in China, a diversifying array of educational options had emerged that were not previously available to earlier generations of transnational Chinese students. In addition to private, international schools for the elites in China, many top Chinese public schools also began to offer special programs geared toward preparing students for studying abroad at the tertiary level. As a result, many participants had been introduced to the concept of "critical thinking" prior to college, through preparatory courses on SAT or English literature and writing. Yet most of the participants also asserted that such formal exposure to the concept in high school, or even later in college, were often done in a superficial or vague way, contributing little to the understanding that they would eventually gather over time of what it means to think critically. In other words, there was a gradual learning process of critical thinking among the participants that called for closer examination of the data.

Perhaps more significantly is that while these students typically reported substantial changes in terms of their perspectives and values while abroad, the role of critical thinking in

such changes was not explicitly recognized or clearly explained. Yet critical thinking was described, by most participants, as something important to them and that they apply it often—more frequently, in fact, in the personal domain than the academic domain. There seemed to be a gap between what many participants had to say about critical thinking as an important concept or tool for them and what they were able to explain about its role or application in actual practice. More of these puzzling gaps came to the fore as I tried to make sense of these general findings across the cases as well as specific findings in each individual case. Arguably, this growing sense of unease and curiosity—namely, the sense that I was uncovering noteworthy phenomena without being able to explain their connections and possible undergirding causes—became a strong driving force for the ensuing stage of a more detailed data analysis.

2. Second Stage: In-depth Case Analysis & Group Analysis

For a more in-depth understanding of the cases and data, I revisited Saldaña's entire *Coding Manual* and picked out a selection of different coding strategies, otherwise known as an "eclectic coding" approach (Saldana, 2013, p. 60 & p. 255), which seemed most relevant for this dissertation. Building upon the analysis in the first stage, the eclectic combination of coding methods used in the second stage included the following: *initial coding, process/causation coding, emotion coding, value coding, and versus coding*. Before delving into how these different methods were applied, helping to enrich data analysis and findings, a quick decision had to be made on a particular case as a starting point for this new round of data analysis.

I chose "Jiayi" to be the first case for a number of reasons. First of all, Jiayi came across in the interviews as a calm and patient participant, who was always ready to provide informative

answers; these qualities made her an accessible initial case, a participant to whom I could return in the event that I needed more information or with whom I could do member-checks. Secondly, based on my knowledge of the participants from doing the case reports, the data on Jiayi appeared to be relatively straightforward and short; therefore, the case was an ideal starting point for experimenting with a range of coding methods that were numerous and possibly complex. Thirdly, Jiayi's familial background and educational aspirations seemed to be representative, if not typical, of the recent generations of Chinese students abroad—those wo are often portrayed in the media or described in Fong's 2011 ethnography as singletons from the rising middle class families in Chinese metropolises, hardworking and ambitious, "born and raised to rise to the top of the global neoliberal system" (p. 142). Lastly, Jiayi was experiencing a difficult decisional dilemma about her academic major/career choice that many other participants also shared to varying extents; as critical thinking is commonly associated with problem-solving and decision-making, her on-going dilemma at the time also seemed to offer an opportunity to explore the cross-cultural dimension of her experience and the role critical thinking may, or may not, have played in her decision-making process.

Once the various coding methods were applied to Jiayi's seemingly uncomplicated case, a rich amount of insights emerged from the data about her self-contained, if not also repressed, emotions and conflicted positions vis-à-vis the decisional dilemma. Piecing together her data or accounts into an explanatory whole became a substantially more complex yet captivating task. The analytical process eventually led to a long yet vivid in-depth analysis of the case, which will be discussed in the next chapter.

(1) Eclectic coding

I applied the eclectic combination of coding methods to Jiayi's data in the following way. First, I used "**initial coding**," also known as "open coding," to work through the entire data set on Jiayi. *Initial coding,* described by Saldaña's (2013), is a spontaneous yet meticulous, line-by-line coding method that is meant to offer researchers "an opportunity…to reflect deeply on the contents and nuances of your data and to begin taking ownership of them" (p. 100). In other words, instead of using the existing codes (e.g. via *structural coding*, shaped by research questions) from the first stage of data analysis, I started a new round of coding process from a more open-ended and ground-up approach in order to better explore the content of students' responses.

Granted, the knowledge that was gained from the first stage invariably informed, albeit in subconsciously, the way I used the additional coding methods in the second stage. For example, I knew from the earlier analysis that the acquisition of critical thinking typically entails the following characteristics for most of the students in the study: a gradual process over time, both formal and informal means of learning, and different manifestations across the disciplines and domains. I also knew that many of these students had consistently expressed in writing and in conversations a strong drive for meaning—whether in the form of internally defined values, desires for individuality, and/or beliefs in pursuing their passion or genuine interests—which seemed to contrast with the more logistical or practical concerns (e.g., socioeconomic security or prosperity and "flexible global citizenship") expressed by the earlier generation of transnational Chinees students in Fong's work. Such background knowledge about the population and research topic from the first stage of analysis then became part of the foci in the

second stage, as I would pay particular attention to issues of meaning-making and critical thinking in the in-depth analysis.

Second, as many coding methods can be used in combination with others, especially for a method like *initial coding* that is "tentative and provisional" (p. 101), I also used "**process coding,"** which highlights "the dynamics of time" dimension and the "complex interplay of factors" within a process (Saldana, 2013, p. 96-100). *Process coding* was used for more targeted and in-depth exploration of certain sections of the data that contained each participant's decision-making process, critical thinking learning process, language/socio-cultural adjustment process, etc. In addition, for cases like Jiayi's where underlying forces were complex and obscure, I also supplemented the use of *process coding* with "**causation coding**." *Causation coding* overlaps with *processing coding* in these aforementioned dimensions, while entailing a stronger emphasis on the link between the phases or changes (p. 100). Saldaña cautioned that *causation coding* should be used not as "a foolproof algorithm for deducing the 'correct' answer," but as "a heuristic for considering or hypothesizing about *plausible* causes of a particular outcome" (p. 165). Over time, as most cases demonstrated embedded complexities (e.g., unprocessed or under-processed experiences or ideas that are common in people, even among those with relatively high levels of self-introspection), I leaned more heavily on *causation coding* (rather than *process coding*) for unpacking the underlying complexities of participants' changes abroad and detecting possible relations between these intrapersonal and interpersonal changes and their development of critical thinking.

Third, I also used "**emotion coding**" to capture salient emotions that might be taking place in these intense processes of change and decision-making. The use of emotion codes helped to

highlight the importance of an experience that may have otherwise gone unrecognized, providing "deep insight into the participants' perspectives, worldviews, and life conditions" (Saldana, 2013, p. 106). This coding method was especially useful for understanding participants like Jiayi, whose expressions were often self-contained and mild, if not also repressed to varying extents; as a result, the changes and struggles they underwent were harder to detect for themselves and for the researchers—i.e., without slowing down and paying attention to their subtle changes or expressions of emotions. For example, applying emotion coding, I noticed Jiayi's changing emotions or emotional responses. She shifted, for example, from expressing a welcoming curiosity toward the arguably quintessential American concept of "be yourself" in the first interview to feelings of vexation toward the same idea in the second interview. This observation of emotions brought to the fore a deeper layer of understanding of her story: her poignant internal wrestling with being or becoming herself that was arguably at the center of her prolonged decisional dilemma about her academic major and future trajectory.

Fourth, since the nature of transnational experiences are often cross-cultural, inevitably entailing value clashes, I also used **"value coding"** and "**versus coding**" approaches to further organize and understand the data. Saldaña (2013) recommended the use of *value coding* to "explore cultural values, identity, intrapersonal and interpersonal participant experience and actions" (p. 111). And he suggested the use of *versus coding* to "identify in dichotomous or binary terms the individual, groups, social systems…concepts, etc., in direct conflict with each other" (Saldana, 2013, p.115). While applying value coding to the two in-depth cases, many pairs of dichotomous values emerged, divided between the U.S. vs. China, individual vs. collective, child vs. parent's value or belief system, etc. As these contending pairs of values implicitly or explicitly

suggest power dynamics and differentials, they seem to qualify simultaneously for versus coding. These two overlapping coding methods helped to highlight the complex set of tensions transnational Chinese participants were wrestling with and perhaps areas in which critical thinking has played or can play a role in mitigating the value conflicts and decisional dilemmas that students experience.

Throughout this detailed coding process, numerous short analytical memos (i.e., reflections and notes of analysis on the patterns and findings that I saw in the coding process) were created about individual passages and, later, longer analytical memos were written to help process the rich insights that were emerging from breaking down the data and piecing them back together with explanation and meaning. Per Saldaña's suggestion, I also experimented with coding or categorizing my analytical memos for uncovering emerging themes (see Appendix 6). The technique was particularly helpful or necessary in the second in-depth case "Claire," in which about 100 analytical memos were created in response to the rich content of the case.

(2) Codebook

While coding Jiayi's case in Dedoose, the software also allowed me to construct a codebook at the same time that recorded not only codes but also further grouping of them into higher and more abstract units—i.e., "categories" and "themes."[102] In qualitative research, the

[102] For readers who are new but curious about the process and nature of qualitative research, here is a brief explanation of the basic terminology from Saldaña (2013): A ***code*** is "a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data." And this portion of coded data can vary in length, ranging from "a single word to a full paragraph to an entire page of text…" (p. 3). A ***subcode*** or *subcodes* are "specific, observable types of *realistic* actions related to the codes" (p. 12). While a subcode is more concrete than a *code,* a ***category*** is more conceptual and abstract than a *code*; (p. 12). In the data analysis process, codes sharing certain characteristics are further grouped into the more abstract and larger units called categories or "families" of codes. As Saldaña explained, coding or categorizing is a "meticulous"

idea of organizing and grouping codes into fewer categories and still fewer themes is to build toward an overarching explanation or theory about the emerging patterns and phenomena under study. Once the coding was completed in Dedoose, I exported the content of the codebook into an Excel document. I personally preferred the more flexible and at-a-glance Excel format, with which I could easily regroup some of the codes as "subcodes" or categories as "subcategories" and rename or refine the existing codes or categories to reflect the new insights that might be gained through the iterative and reflective process of coding analysis. In other words, in the process of constructing and refining the codebook, many aspects of what Saldaña (2013) called "second cycle coding" were taking place—i.e., a stage where codes are grouped under fewer categories and still fewer themes for a more holistic consideration of "how everything fits together" (p. 208).

In the codebook for the in-depth case analysis (see Appendix 6 for more details), more than 250 codes and subcodes were created and grouped under 14 categories and 5 tentative concepts/themes. Under the concept titled "Selfhood/Intrapersonal Core," for example, there are three categories—i.e., "knowing component," "value/belief component," "action/agency

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yet "not a precise science; it is a primarily interpretative act" (p. 4). In naming and organizing the *categories*, for example, "[y]ou use classification reasoning plus your tacit and intuitive sense to determine which data 'look alike' and 'feel alike' when grouping them together…" (p. 9). A ***subcategory*** to a category is like a subcode to code; there may be a number of subcategories within a category. Saldaña did not seem to offer a concrete explanation but used a hierarchical graph to demonstrate the relationships between subcategory and category (p. 12). Lastly, a ***theme/concept*** is "an *outcome* of coding, categorization, or analytic reflection, not something that is, in itself, coded" (p. 14). *Theme/concept* is the most abstract and inclusive unit in the coding process. Saldaña explained the difference between *category* and *theme* in the following way: "think of a category as a *word or phrase* describing some segment of your data that is *explicit,* whereas a theme is a *phrase or sentence* describing more *subtle and tacit* processes" (p. 14). For example, Saldaña mentioned his own study on bullying behavior in elementary school, in which two categories were identified that were also aligned with children's different genders (i.e., boys vs. girls): "oppression through physical force" and "oppression through hurting others' feelings"; consequently, a theme developed based on these categories was "peer oppression is gendered." This relationship between *category* and *theme* was aptly captured by Seidman's (2013), when she described a *theme* as something (e.g., a concept, phrase, or sentence) that explains the "connection[n] between the various categories" (p.127).

component"—that inform the ways that individuals create meaning in their lives. Moreover, the *value-orientation* category, for example, consists of two discernable subcategories: "values/ beliefs" and "attitudes."[103] And within the "value/belief" subcategory, there are 8 value codes, each of which contains a pair of versus subcodes, reflecting the versus coding method that was used in analyzing the data and, more importantly, the cross-cultural value/existential/moral conflicts that participants seemed to be experiencing as transnational Chinese students abroad or in the U.S.

While this detailed coding and reorganization slowed down the analysis process, it created opportunities for in-depth consideration of the individual cases—or what Seidman (2013) emphasized as a "total immersion in the data" (p. 130). Especially for the two in-depth cases, Jiayi and Claire, I examined almost every piece of detail in the data, considered all the gaps or inconsistencies within each participant's narratives (e.g., due to changing experiences or reversal of positions over time), and adjusted any assumptions I might have had about the participants who shared many similar characteristics and experiences with me as fellow transnational Chinese students.[104] In spite of the thorough coding and regrouping of the data, I still did not feel I had an overall, holistic understanding of the case and how the larger analytical units "fit together" to tell an account or story that, as Saldaña said, should aim, ultimately, "to transcend them [i.e., coded data]—to find something else, something more" (p. 208).

[103] Saldana also suggested distinguishing "value," "attitude," and "belief" separately (p. 111), though his explanation and instructions on these separate categories were briefly. There does not seem to be a consensus among scholars on how these terms should be defined or what their relationships might be. In my codebook, theme 10 specifically addresses the value aspect, conceptualized as part of a person's intrapersonal core or selfhood. Yet in writing the cases, values can be external, internalized, and/or examined by oneself that embraced as internal values.

[104] More discussions on the researcher's bias and mitigation mechanisms in the "Researcher's Positionality" and "Data Validity and Trustworthiness" sections.

Apparently, this cognitive uncertainty may be quite common among novice qualitative researchers doing detailed coding. As Bazeley (2013) cautioned: "one of the dangers for those who rely heavily on coding as a form of analysis is that the perspective of the case(s) can be lost. Without understanding the dynamics of each of the cases in a study, analysis across cases is in danger of being superficial. Aggregation of fragments from across cases risks an artificiality that does not truly represent any case" (p. 188-189). Therefore, Bazeley also suggested alternative analytical approaches to data analysis and interpretation, such as using a "profile" approach, explaining that "[i]n small-sample studies, or for studies with a methodological or substantive focus on particular cases, preparation of a profile for each case is a most useful early step for both within-case and across-case analysis" (p. 189).

Following Bazeley and other qualitative researchers' suggestions, I turned to *profile* as an alternative approach—i.e., in addition to coding methods described above—for analyzing and processing the research data.

(3) Narrative Profile

I turned to Seidman's 2013 book titled *Interviewing as Qualitative Research* as the primary source for profile construction, because it offered a more substantial explanation of the approach, along with examples of actual profiles. Similar to Bazeley, Seidman (2013) also described "profile" as a form of story-telling or sharing of a participant's experiences that contains "a beginning, a middle, and an end, as well as some sense of conflict and resolution" (p. 122). Moreover, Seidman emphasized that this "narrative form of a profile"—or *narrative profile*—should be presented in participants' own words, as they can "reflect the person's

consciousness," context, and intentions (p. 122). Granted, the interviewer or researcher is the one who crafts the narrative from what the participant has said—i.e., by reducing interview segments to essential chunks of interest, occasionally moving segments (i.e., without losing their context) around, and adding minimum transitions to create a coherent narrative. Therefore, the crafted narrative profile or story can also be described as a co-construction that is "both the participant's and the interviewer's" (p. 122).

Adopting Seidman's description of narrative profile, I first used this approach on Jiayi's data and found it to be effective in providing me with a holistic understanding of her experience and perspective. As Seidman (2013) explained, writing profiles can be "a way to find and display coherence in the constitutive events of a participant's experience, to share the coherence the participant has experienced, and to link the individual's experience to the social and organizational context within which he or she operates" (p. 123). Drafting Jiayi's narrative profile, I gained a richer and perhaps more accurate understanding of her as a unique individual, who also exhibited numerous traits, ideas, and experiences that resembled others' to varying extents.

I then applied this profile approach consistently to the other cases, as a way of balancing the systematic breakdown or analysis of the data and generating the much needed overall understanding of each case as an integrated, individual entity. In other words, *narrative profile* played a crucial role in my writing of the two in-depth case analyses (Jiayi and Claire, in Chapter 5) and, later, in the three group analyses (in Chapter 6)—though there, a shorter version of narrative profile called "vignette" was used, which "covers a more limited aspect of a participant's experience" (Seidman, 2013, p. 122). That is, vignettes from the individual participants pertaining to their selfhood and critical thinking development were crafted and

organized into categories and themes to illustrate the general patterns that seemed to have emerged in the findings—i.e., the relation between the different degrees of critical thinking application and the varying levels of self-authorship in the group analysis.

Even though narrative profiling became a more prominent approach in the second stage of data analysis, the eclectic coding methods and detailed code tree still informed the way I approached the profile. That is, similar to the way Seidman (2013) used profile, I also "marked individual passages [within each profile or case], grouped these in categories, and then studied the categories for thematic connections within and among them" (p. 121). In analyzing and preparing for the write-up of the second in-depth case, Claire, for example, I first created a long profile of the case for an overarching understanding of the narrative from the student's perspective. Then, I copied the profile into another document where I indexed all the segments, along with numerous related analytical memos, into themes, categories, and codes. In other words, in a reverse order from Jiayi's case where I started with coding and then profile, I began by creating a profile on Claire's case and then moved, organically, into a similar albeit slightly more sweeping[105] type of coding. The codebooks that emerged from the two cases were eventually compared and consolidated into an integrated codebook (see Appendix 6), which became a reference point for developing a more concise codebook for later pattern analysis. In short, perhaps Bazeley's (2013) description of the term "hermeneutics"—i.e., a "dynamic, iterative process of understanding the meaning of the whole and of the parts within it" (p. 203)—

[105] In spite of the unexpected duration of the data analysis and writing process of this dissertation, there was always the practicality or pressure to complete it within a limited amount of time. Therefore, I experimented with ways to reduce the time required for the kind of extensive detailed coding I did on Jiayi's case (a month or more, which would be unsustainable for a dissertation with 20 such cases).

best capture the back and forth between narrative profile and eclectic coding in the second stage of my data analysis.

In addition, an equally significant portion of the second stage was also devoted on analyzing and writing about the cases as several broadly defined groups. This is because as I kept updating and revising the Excel document (originally created in the first stage of data analysis; see Appendix 7) with new insights from the two in-depth cases—demonstrating substantially different levels of understanding and applications of critical thinking—I also began to reorder their placements in the Excel document to better reflect their different levels of understanding and applications of critical thinking. This small effort, however, quickly led to an extensive process of the reordering the other 19 individual cases, because such rearrangement of the rows or cases by varying demonstrations of critical thinking may lead to more meaningful patterns to emerge, affecting the eventual interpretations or responses to the research questions. Therefore, starting with a tentative grouping of the cases (into 3 broadly defined groups) based on my prior knowledge of the cases, the reordering process also entailed with a detailed verifying stage where each case was reanalyzed iteratively by a combination of the shorter version of narrative profiling called "vignette" (as mentioned earlier) and focused coding pertaining to the emerging themes of selfhood and critical thinking. The end result of this reordering and justification process is a new chapter on group analysis that provides richer descriptions of the study population and a more nuanced analysis of the interplay between selfhood and critical thinking development.

3. Third Stage: General Pattern Analysis

By the time I finished the extensive group analysis, patterns had also become more established in the Excel, and themes had emerged based on my deepened understanding of the cases. This is because while writing the group analysis, the individual cases were reordered and new insights about each case were updated under the evolving structural codes in the Excel document (an updating process that continued through the various stages of data analysis). The greater reliance of the color-coded (equivalent to "magnitude coding" as explained earlier) Excel for pattern findings in the last stage of data analysis is similar to one of the alternative strategies Bazeley (2013) recommended for research that entails data from numerous individual cases—i.e., "[c]reate a profile of each case under headings reflecting those points of interest in an Excel spreadsheet, to allow for further work using comparative analysis" (p. 189).

Yet the expanded structural codes or "points of interest" in the Excel document were still broadly defined, functioning more like the larger coding unit called "category" or "subcategory." As a result, content information under these large codes or categories, even after distinguishing them by color or magnitude coding, were not providing sufficient details that can illuminate the complexities within the general patterns. For example, under the category of "application" of critical thinking (see Appendix 7), there are three subcategories, such as application of critical thinking in the "personal domain." While the varying shades of green, yellow and red indicate the different extents to which the participants had applied critical thinking in this domain—showing, for example, an immediate contrast between the groups in this respect—the colors and basic summary within each coded Excel box did not contain enough detailed data and analysis required for a more nuanced interpretation of the pattern that can shed further light into the research population and topic.

Therefore, an abbreviated codebook (see Appendix 8) was created to be used in conjunction to the pattern findings in the Excel document for the final stage of data analysis and writing. The codes (including also subcodes, subcategories, and categories) consolidated in this new codebook came in part from earlier codebooks (e.g., from the in-depth case analyses, which was more detailed and comprehensive than needed for patterns and themes focused in the last two chapters) and in part from codes that could most effectively address the emerging patterns and themes for responding to the research questions. For example, to better illuminate the intricacies with in the pattern of participants' application of critical thinking in the "personal domain," more refined codes were added to the new codebook for distinguishing the different areas or major topics within the domain to which critical thinking were applied: e.g., "decision-making process" and "belief/value system."

Using these finer codes to gather relevant data from all the participants, a more nuanced analysis or explanation emerged, replacing the simpler, color-coded pattern that can be spotted in the Excel document (i.e., students at the top of the Excel sheet or those with stronger demonstration of critical thinking practiced it more frequently in the personal domain). The new and finer version of the pattern provided more explanatory insights and can be stated as the follows: while all participants applied critical thinking to some extent in the personal domain, particularly for decision-making, students with higher levels of critical thinking also demonstrated a strong aptitude for examining their self-knowledge and belief/value systems, which may have contributed to their more substantial changes and growth over the years abroad.

In addition, a small set of codes from the theoretical framework are also included in the codebook, such as the concepts of "disembedment" and "reembedment" from the sociological

theory of "late modernity." While conceptual codes from the theories were not used deductively and actively to code and analyze the data from the participants, they were applied to the codes in the codebook in the last stage of analysis for a richer explanation of students' experiences and perspectives. This additional layer of analysis through the theoretical lenses or codes is reported primarily in the conclusion chapter.

In short, codes in the new codebook overlapped to an extent with the evolving structural codes used in the Excel document and the case reports (in the first stage); however, these codes are also more updated and finer in the sense that they are more grounded on the research data and they are selected specifically to help addressing the research questions in the last two chapters. Using these codes to gather relevant data from all the cases and congregate them for further analysis provided a measure of consistency that also helped to verify *and* enrich the explanation for the larger patterns that had emerged in the Excel document and from my overall understanding of the cases through the research process.

V. POSITIONALITY

This dissertation project on critical thinking and its impact on transnational Chinese students' cross-cultural education and development stemmed from my own experience as a member of this group, albeit almost one generation (15-20 years) removed. As a more extensive account of my own story and how that had motivated my research is described in Appendix 1, the focus in this section, which is typically required of qualitative studies for the purpose of establishing greater research transparency and trustworthiness, is to explain how my personal and academic background might have shaped the research process.

First of all, my identity and membership of this broadly defined group of transnational Chinese student provided me with a basic understanding and immediate access to the study population. Even though the initial recruitment during the pilot project was not easy, a much larger than anticipated number of students eventually responded to the study. As numerous participants mentioned that they were motivated by the desire to be part of study that focuses on Chinese students abroad or to help out a fellow Chinese student' research, my data collection benefited from participants who were often eager to share their experiences, to engage with the interview topics, and to provide their candid responses. In addition, my native language ability in Chinese and experiences in both China and the U.S. facilitated an in-depth exploration of the research topics with the students. For example, while the students were given the option to use a language of their preference (i.e., English or Chinese), the majority of students gave their responses in Chinese, with occasional expressions in English whenever it felt to be the better language to express their feelings or thoughts at the time. In addition, a number of students mentioned that the study provided them with an opportunity to reorganize and reflect upon their experiences in a way that was both helpful and hard to find in everyday conversations with family members or school friends.

At the same time, my background knowledge and shared experiences, to varying extent, with the research participants also came with its own of challenges, especially in the data interpretation stage. As the Chinese society has undergone tremendous changes in the past few decades, the research participants had, in fact, grown up in a substantially more diversified social and cultural environment within China. Sometimes significant changes are manifested in more subtle ways, such as the more communicative, sensitive, or democratic dynamic within the

families, between parents and the child (since most of students were singletons). For example, while Jiayi's (chapter 5) parents often intervened with her decisions big and small since her childhood, ranging from what books to read to what careers to pursue, their interventions were expressed not in the strict sense, as I had first thought, of what she *should* do but in an arguably more lenient sense of what she *should not do*—which could leave her with more options to decide for herself. I did not pick up the subtle difference for a long while, because, in retrospect, my initial interpretation was probably colored by my own experiences growing up in China at a time when binary thinking and strict parental interventions had been more common.

As this realization—i.e., of how my own background can function as a kind of liability or bias at times in the interpretation process—emerged early in the second stage of the intensive data analysis process, I began to pay meticulous attention to every detail in the participants' accounts. While the iterative coding process, the varied analytical approaches (e.g. narrative profiling) applied to the data, and the eventual write-up of a rich description of almost all the cases (in chapters 5 & 6) cumulatively slowed down the analysis process, they also provided me with numerous opportunities to hone on my understanding of the cases and check for inconsistencies or oversight within my interpretation.

Secondly, my educational or intellectual background primarily in the humanities (classics and philosophy) also shaped my research in several ways. The basic research topic on critical thinking grew directly out of my earlier study on Plato's epistemology—e.g., what constitutes knowledge and how it differs from opinion. The dissertation's focus on the definitional or conceptual aspect of critical thinking, rather than the pedagogical or policy issues, was also in part directed by my philosophical interest. In addition, later exposure to feminist standpoint

theory at the doctoral program also influenced my research perspective and ambition for the dissertation project. Feminist standpoint theory is a branch of critical theory that advocates for the empowerment of marginalized and disadvantaged groups, such as women, through the validation of their voices and utilization of their collective experiences for the construction of knowledge that can usher greater social justice and transformation (Harding, 1994 & 2012). Inspired by this more activist approach to scholarship, I began to see a broader meaning in the research project—one that is to satisfy not only an intellectual curiosity or a personal necessity to make sense complex and conflicting phenomena but also a more socially and politically engaged responsibility for bringing in voices from the periphery for better knowledge construction that may impact how we live and interact with one another. As a result, the extensive data collection and analysis of students' experiences beyond the narrower focus on critical thinking as well as the aim to reconceptualize critical thinking in light of these students' perspectives became indispensable aspects of this dissertation project.

VI. TRUSTWORTHINESS & RIGOR[106]

Issues of trustworthiness and rigor in qualitative research (equivalent to the concepts of validity and reliability in quantitative and experimental/scientific research) are important to address, because research findings may impact practice and policy. According to Merriam (2009),

[106] Perhaps compelled to meet the criteria of science, "rigor" is a term in qualitative research created to convey the idea of "reliability" in scientific/experimental and quantitative research. Yet as Merriam (2009) explained, along with other qualitative researchers she cited (p. 220-222), it is not possible to replicate qualitative research and then gather the same findings, for an underlying assumption of qualitative research is "that reality is holistic, multidimensional, and ever-changing" (p. 213). Different researchers, due to their varied personal and research background and lenses, are bound to generate varied interpretations or findings. The best that qualitative research can do is to ensure research trustworthiness and rigor, which are not exactly the same thing but seem to be attained, according to Merriam's description (p. 222), through a similar set of strategies as described in this section.

research experts have expressed divergent opinions on what constitutes validity/trustworthiness and reliability/rigor in qualitative research; however, there are a number of ways that have been commonly used to ensure the quality of research findings.

For example, *triangulation* is a popular strategy for ensuring trustworthiness of research findings, which means that the findings in qualitative research, which are invariably interpretational, are able—to the extent possible—to reflect "the perspectives of those involved in the phenomenon of interest, to uncover the complexity of human behavior in a contextual framework, and to present a holistic interpretation of what is happening" (Merriam, 2009, p. 215). There are several types of triangulation, ranging from multiple sources of data to multiple theories and methods. As explained earlier in this chapter, even though this dissertation focused primarily on interview data, it also drew upon knowledge from other data sources to provide the larger context for better interpreting students' accounts. Data collection also entailed 3 steps—one online questionnaire and two interviews—each of which included at least one cognitive task that collectively yielded a number of different types of data: written and verbal, explanation and demonstration of participants' thinking processes. In addition, three different theories were adopted for the theoretical framework, which broadened the scope of data collection and enriched the data interpretation, particularly in the conclusion chapter.

Member checks is another common strategy for increasing research trustworthiness. The three-step questionnaire and interview process over an academic year provided several opportunities for member checks during the data collection stage. For the two in-depth case analyses where a much wider range of contexts and experiences were taken into account, I corresponded with the students during the interpretation stage and showed them the final

product for feedback. As most of the interviews were conducted in Chinese, I double-checked the translation for certain words or concepts that are difficult to translate from Chinese to English with both native Chinese speakers and English speakers. Whenever it seemed necessary, I also provided the Chinese original and other possible translations in the footnote section. If a particular expression or key concept was expressed in English by the participant, I also noted that in the footnote.

An audit trail or research log records the details of the research process from data collection to interpretation. It is an additional but less common way to provide transparency and increase trustworthiness for the findings. To the extent that is possible to demonstrate in the dissertation, I provided detailed explanations of my research process in this chapter and key documents that were used for data collection and analysis in the appendix section.

A better and more common way to demonstrate researcher's sufficient engagement of the data and sound interpretation is perhaps *rich, thick description* that can provide ample evidence for readers to see for themselves whether the findings make sense. Moreover, as Merriam (2009) stated, when the findings or knowledge gained from the qualitative study are presented with sufficient detail, it may enable the reader (e.g., an educator or student) of the study to "decid[e] whether the findings can apply to his or her particular situation" (p. 226). Such knowledge transferability, though not quite the same as the concept of "generalizability" in quantitative or experimental studies, makes findings from qualitative research relevant for others beyond the limited study population.

Lastly, as all research has to be done in an ethical manner, I showed a prepared consent form to the participants and obtained their oral consent (recorded along with the first interview)

before conducting the interviews. I also informed the participants at the start of the interviews that they do not have to answer questions should they prefer not to. In my transcripts and data analyses, I gave each participant a number or pseudonym to protect their identities. In addition, in the write-up, I also used more generic information whenever possible (e.g., STEM or engineering major instead of the specific subbranch of engineering or discipline that a particular had chosen to study) to maximize their privacy. All data collected for this study and the work that has been done since are stored in a password-protected device.

Chapter 5a. In-depth Case Analysis (I): Jiayi

A CASE GROOMED FOR SUCCESS

I. INTRODUCTION

Observing the rapid changes and motions that were taking place in industrial nations such as the United States in the early part of the 20th century, the deeply observant philosopher and educational psychologist John Dewey wrote the following analysis in his seminal work *Democracy and Education* (1916 [2012], p. 26):

> As a person passes from one of the environments to another, he [or she] is subjected to antagonistic pulls and is in danger of being split into a being having different standards of judgment and emotion for different occasions. This danger imposes upon the school a steadying and integrating office.

This trenchant diagnosis, made a century ago, of inner tensions due to migration, displacement, and/or exposure to divergent ideas and practices may still apply—at an even larger scale— to the experiences of individuals in the 21st century, such as those of the transnational Chinese students in this study. In addition, Dewey's call for education to take on a vital role in ensuring the wellbeing and growth of such individuals or students may also be more relevant today, because of the mass flow of goods, ideas, and people moving (physically and/or virtually) in and out of their homelands and habitual boundaries.

Arguably, for youth like the transnational Chinese students who typically traverse different geopolitical spaces and straddle varied cultural and ideological systems on their own—i.e., without the presence of their families and communities sharing the same experiences or changes— they may be more likely to experience the intense "antagonistic pulls" and "danger of

being split" mentioned by Dewey. In their common quest for a life that is not only successful by external standards but also internally meaningful and authentic, these students are faced with the challenge of making choices and defining a path of their own in the midst of uncertainties and contending pulls that entail different ways of thinking and being in this world. And the strengths of opposing pulls they experience may rip open a host of moral, epistemological, and existential questions that can be both liberating and confounding.

The following two in-depth case analyses in this chapter aim to shed light on this transnational experience and the ways in which critical thinking education may or may not have facilitated these students' development and wellbeing. Written initially as mini, standalone pieces to showcase the overall structure and analytical capacity of my dissertation, each of the two cases contains three sections—e.g., findings, discussion, and theorization. The findings section provides a comprehensive discussion on each participant's transnational journey and their experiences with learning and applying critical thinking. The discussion section begins with an analysis of the cross-cultural pulls that the participants experience, explicating how these contending forces make complex decision-making even more challenging. The cross-cultural analysis is then followed by a deeper exploration of the students' experiences and the role of critical thinking in their development via the 3-fold theoretical lenses (drawn from sociology, psychology, and philosophy) adopted by this dissertation. The theorization section explores potential areas where existing conceptions and pedagogies of critical thinking may be reconceptualized or improved to better coordinate the social and individual needs and address the challenges expressed by the student participants.

Due to the substantial length of each case, this chapter is divided into two parts: Chapter 4a analyzes Jiayi's story, which is then contrasted by the narrative of Claire in Chapter 4b. In addition, due to the extra length of the second case (Claire's), each section contains a summary that highlights key takeaways. The structures of both cases follow a similar 3-section format (i.e., findings, discussion, and theorization), though the order of the subsections (headed by subsection titles) within each section may vary slightly. Lastly, as Chapter 4a contains this general introduction to the entire chapter (part a and b), Chapter 4b will end with a brief conclusion for the chapter as a whole.

II. FINDINGS

1. Well-prepared for Studying Abroad

Jiayi came from a comfortable middle-class family in a rapidly changing Chinese metropolis. Both of her parents were professionals with graduate degrees. While attending one of the most prestigious public high schools in the city, she was also enrolled in its "international curriculum center"[107] designed specifically for students whose goal is to pursue higher education abroad. Almost all of the courses, except those on Chinese language and literature, were taught in English, often by foreign (i.e. non-Chinese) instructors with expensive textbooks imported from overseas. To help students succeed in the college application process, the center also offered test prep courses, short-term summer programs and exchange programs abroad, as well as opportunities to develop students' extracurricular interests. Jiayi reflected positively on the academic rigor and progressive spirit of the school:

[107] The center charge a separate, hefty tuition for students in the program.

> There were always ways at the school for students to make their ideas happen, and many students started their own clubs…. The courses were quite advanced, especially in mathematics; what I learned in senior year of high school was still being taught in my sophomore year in college.

Before coming to the U.S. for college, Jiayi also travelled abroad on numerous occasions, such as a two-week trip to the U.S. for a summer program and several short visits to Korea for the sole purpose of taking the SAT.[108] Having been carefully groomed to succeed in her educational journey abroad, by the time we met for the interviews, Jiayi was excelling as a college junior with an excellent GPA for her major in a STEM field. When asked about any challenges experienced while studying abroad, Jiayi dutifully identified vocabulary and course content challenges in the initial online questionnaire. Delving a bit deeper in the in-person interview, however, these explicitly mentioned areas or "challenges" appeared minor. They revealed more about her high self-expectations than actual problems impacting her academic performance or well-being.

For example, although Jiayi expressed several times the desire to work on her English vocabulary, it was not for a lack of repertoire of sophisticated words that might be hampering comprehension or communication in the U.S. In fact, her vocabulary seemed to be larger than adequate for her routine learning: "My vocabulary reached its peak during the preparation for the SAT. Since coming to college, I would occasionally see a few words from what I had memorized." Her command of the English language was also sufficiently advanced for her to perform well even in writing-intensive courses—an area where international students like her are traditionally known to face some challenges: "I don't always get As in those courses,

[108] SAT was not offered in mainland China, at least at the time when Jiayi was taking the exam. This meant that students in China had to take SAT in Hong Kong or elsewhere outside of China.

sometimes A-minuses." Later on, Jiayi explained that her concern for greater vocabulary arose largely because of her eagerness to do well on the GRE, which she was considering taking.

Similarly, in discussing her purported academic challenge—i.e. "questions derived from the course content"—Jiayi showed an eagerness to excel and an active approach to her learning. Unlike some Chinese students in the study who were indeed shy about approaching instructors, Jiayi "went to professor's and TA's office hours regularly, and [was] able to resolve most of questions this way." When asked about her GPA, Jiayi gave a meticulous account:

> My academic performance this quarter isn't great, because I have been too busy [with extracurricular activities]. My GPA before [this year] was 3.906. It moved up to 3.916 in the first quarter this year…then dropped to 3.892 last quarter because I received a B for a difficult upper-division Math course. So I've lost 0.24, no, 0.024 point so far.

Even though Jiayi was not struggling academically in terms of GPA, her painstaking response suggested as much about her characteristic modesty as her anxiety about her academic competitiveness.

2. Actual Challenge: Decisional Dilemma

The most immediate cause of this anxiety stemmed from the steep competition she was facing as a pre-med student with a foreign passport. To her knowledge, only 2-3 students out of a typical class of 100 students in each medical school in the U.S. were international. To accomplish this formidable goal, Jiayi felt the pressure to procure an impeccable academic record. Meanwhile, her resourceful parents had applied for the expensive EB-5 Investment Visa to the U.S., which would ideally provide her with a permanent resident status and thus improve her chances for medical school. Perhaps feeling the extra responsibility as a result of her familial

support, Jiayi hoped to have "a steadfast mind" for achieving her goal. Judging from her actions or record alone, Jiayi demonstrated herself to be just what she had wished: dedicated, perseverant, and impeccable in her capabilities. She was taking 4-5 upper-division courses every quarter, in addition to 4-5 intensive medicine-related service activities at the university hospital and local clinics, as well as having a research opportunity and more courses lined up for the summer. Jiayi even recounted all the courses and extracurricular activities with technical precision, showing a rare moment of pride for all she had accomplished within a short period of time.

Yet in the same line of her questionnaire response that showed her resolve to study medicine, Jiayi wrote: "This relatively late shift [to the pre-med track] brought some perplexity that I am trying to deal with." In the later interviews, despite being deeply invested into the goal to pursuing medicine, Jiayi still felt lingering doubts:

> It still feels as if at any moment I can just drop this plan to study medicine; at the same time, it also feels like I don't want to just drop it because of all the efforts already made. It's time now for me to focus on the doing and accomplishing something, so I don't want to give it [medicine] up. But committing to this decision is still difficult.

Although not initially mentioned or recognized by Jiayi as such, the decision about what to study and which career to pursue – i.e. *making important choices of one's own*—presented a much deeper, actual challenge that was impeding her from moving forward with ease and desired concentration. Moreover, aside from such moments of candid reflection and occasional expressions of plaintive sighs or frustration, Jiayi's internal struggle was largely contained and invisible. Nevertheless, in spite of her otherwise rapid and even-tempered articulation throughout the interviews, the intensity of her dilemma felt quite acute.

3. Forces Contributing The Dilemma

(1) Deferential thinking, along like others

What was then making the pursuit of medicine a thorny dilemma for Jiayi? Describing her experience as a clinical research volunteer at a local clinic recently, Jiayi broached the subject of her general aversion to physical interaction with patients:

> I thought that I had to do a skin test on a patient all by myself that day…even though I knew I would be wearing gloves and the patient didn't show any sign of awkwardness about me doing the test, I still felt uncomfortable at the thought of drawing lines on his back and touching his skin.

Jiayi recognized this potential hindrance even before she started volunteering at the health clinic. She made the following comment about herself in the first interview: "Actually, I am a bit resistant to interacting with patients; I don't have a lot of empathy;" as if realizing she was being too self-deprecating and still wanting to give herself the benefit of the doubt, Jiayi soon added, "perhaps this is because I don't have any clinical experience yet, and things might change once I know more about the field." Yet despite later hands-on clinical experiences confirming her initial reservation, Jiayi still kept investing more into the premed track and urging herself to "find a way to overcome this psychological barrier" with patients.

Her persistence seemed to have been largely fueled by her family, particularly her aunt, who practiced medicine in the States. Jiayi felt she had the academic capability and dispositions of "gentleness, perseverance, and being a problem-solver—according to my aunt" to make a fine doctor. More importantly, as Jiayi explained candidly, the decision was "ultimately motivated by practical considerations," i.e. the social and financial benefits that come along with being a doctor, especially in the U.S. Even though Jiayi expressed misgivings about choosing a career based on external gains—referring vaguely to online Chinese posts that debunked such a self-

seeking approach to life—she also felt she “cannot refuse these practical considerations” and needed to comply with the more “mainstream” approach espoused by her family. Speaking softly and hesitantly, as if she was still struggling to come to terms with the rationale undergirding her default choice, she said: “There are many commonsensical things that everyone agrees, that one cannot but accept, like finding a good job. Everyone is striving for a good job, so I will have to do that too.”

When asked what a “good” job entails and how it might be related to the kind of life one wants to live, Jiayi answered: “If you ask me what kind of life do I really want, I don’t know the answer. I haven’t thought thoroughly about questions like the kind of life I may possibly want.” Even though Jiayi recognized the need to consider thoughtfully these “macro questions [i.e. sociopolitical and existential questions] that emerged more prominently here [i.e. abroad],” she said that after some “very brief attempts” she resorted to largely avoiding these unwieldy concerns: “typically I wouldn’t express a strong opinion on these matters, or I would simply ignore them.” Her approach stemmed in part from the sense of uneasiness provoked by the thinking process itself: “I felt suddenly I can’t think independently enough, that I am fairly weak in this area.” Her choice to ignore these questions was also in part supported by the seeming lack of relevance such thinking had to her academic performance or daily life: “Even though I knew I wasn’t good in this area [i.e. independent thinking], the chances of it being called upon were few, so its impact was limited. It didn’t seem especially important, so I just put the issue aside.”

Eschewing the larger questions or concerns, Jiayi’s focus shifted to the more immediate goals or concerns, e.g. applying for medical schools, and the concrete tasks required to fulfill these goals. More accurately, by the second interview, her energy appeared to have been

channeled to not so much the *what* as to the *how*, i.e. how to achieve the decided goal successfully with optimal actions and concentration.

(2) Negational attitude toward oneself

While coming to term with her chosen trajectory in medicine, albeit unsatisfactorily, Jiayi seemed to have also defaulted to another line of reasoning. It was stated repeatedly in the interviews, though always with the same tone of quiet exasperation: "I just haven't found anything that I like," or "my problem is that I don't have a passionate interest for any particular field or discipline, the kind that I would pursue regardless of what others think." On the one hand, Jiayi's claim may be justified by the fact that she might not have possessed an interest so strong that that it could withstand all external resistance and internalized pressure. On the other hand, she did have interests that emerged naturally before this perplexing decision process. For example, Jiayi recalled that in high school: "I enjoyed physics, but they [my parents] didn't want me to pursue it as a major. So I settled on math, thinking it was at least tolerable…at times, the problem-solving aspect can even be quite interesting." In college, Jiayi was initially drawn to mathematical data analysis, after taking a course on the topic that sparked her interest. She also wanted to minor in Oceanic and Atmospheric Science, after watching a related documentary. But she later aborted the plan for a similar reason: "my family are not really satisfied with my original major, so I am going to change it to [another STEM major], which might be more mainstream and easier to find a job."

In the form of well-intended guidance, Jiayi's parents seemed to have played a substantial role in the development of her interests, whether in the form of curbing her initial interests in high school and college or of subduing her reservations about pursuing medicine:

> I felt torn for a long time. I have previously thought a number of reasons why I don't want to study medicine, but they were not strong enough; each time I brought them up with my parents, they [parents] were able to refute or persuade me otherwise. So I feel making decisions [of this sort] is quite difficult.

Yet surprisingly, in spite of these repeated interventions leading to her decisional dilemma, Jiayi did not demonstrate any negative emotion or resistance to their involvement. On the contrary, there was a sense that some parental control was anticipated and that she generally appreciated their involvement, as she said calmly: "Actually, my parents were alright, they never said I must choose this or that [career path]." Jiayi's deference to her parents seemed to be a direct response to the consistent financial and emotional support they provided for her and to the close communication they maintained almost daily via social media while she was abroad. Coming from a culture that has traditionally emphasized filial loyalty and reciprocity, Jiayi seemed to have felt that it was quite natural to give considerable weight to her parents' wishes on important decision-making processes.

Yet this deferential respect or closeness to her parents seemed to have generated an unintended side effect: in making her decision about what to study and pursue, Jiayi also exhibited an attitude that parallels her parents' interventions. While they did not go so far as to dictate exactly what she should study or do in the future, they did disapprove repeatedly of what she was interested in pursuing. Likewise, when describing the bottom line for how she chose her major and future career, Jiayi's framed her rationale in a double-negative: "At least one shouldn't do what one dislikes." When recounting her decision-making process and dilemma, her

description was often punctuated by phrases like "don't," "shouldn't" and "couldn't." Moreover, as Jiayi became more firmly invested in the pre-med track by the second interview, she would recall less of her earlier interests or their significance to her. To my curious reminder of her previous interests in the second interview, she eventually relented and said almost grudgingly: "Alright, I have to admit that I do have some interests."

These varied manifestations of self-denial gradually led me to consider an approach or attitude undergirding Jiayi's decision-making process as "negational" (which is not to be conflated with "negative").[109] It stood in clear contrast to the more affirmative stance that appeared among other participants in the study, such as Claire—the case to be analyzed and compared with later in this chapter. In contrast to the affirmative stance that affirms and centers around what one likes doing or studying, the negational stance prioritizes what others think and in turn emphasizes what one doesn't dislike or can't reject completely. This negational approach may appear, at first sight, rather benign and even open-minded. Considering it a bit deeper, however, it seems to demand flexibility and compromise, if not the actual forsaking of what one likes—e.g. interests and values that manifest one's individuality. If the affirmative stance can be described as having oneself at the center of the decision-making process or priority, the negational stance seems to prioritize others at the center. In Jiayi's case, this way of thinking might have paved the way for numerous possibilities that she would feel obligated to try—e.g. medicine under the "strong encouragement" of her trusted family members. Along with her

[109] I take "negational" to be different from "negative" in this study. *A negative attitude* means something more negative and sinister, aims to criticize or target a person for being not good enough or not smart enough. By contrast, *a negational attitude* manifests itself more like admonishing or preventing someone or oneself from doing something, e.g. "don't study physics, because its job prospect is not promising or is too narrow."

belief that "I just don't have things that I really like to do," this negational thinking might have contributed to Jiayi's downplaying of her own experiences (e.g. discomfort with patient interaction), propelling her instead to keep pursuing a goal as long as it was not completely objectionable to her.

(3) Imbibing norms unexamined

What seemed to have further intensified and complicated the decisional dilemma for Jiayi was another force that stood almost in opposition to the push from her parents for her to adopt more secure and mainstream choices: the urge to be "unique." Jiayi said that the desire for uniqueness or individuality became prominent after she came to the States. Perhaps compatible with her youthful impulse for adventure and curiosity, this newly internalized but unexamined force led her to relinquish her initial plan in pursuing data analysis:

> When I first took a course on data analysis, it was just an emerging field…. But recently, after seeing so many people [e.g. Chinese students abroad] are getting into it, I just didn't want to pursue it further. I don't want to follow the mainstream; I want to be a bit more unique.

By contrast to the field of data science, medicine seemed like a more unique or unusual choice for Chinese students abroad due to its sheer difficulty for international students in getting admitted into a medical school in the States.

When I asked whether "being unique" has to be manifested as *being different from others or the mainstream*—Jiayi couldn't quite answer, wondering out loud: "what other ways can one express one's uniqueness?" I then raised the possibility of being unique as *being oneself—i.e. doing what one enjoys*, regardless whether it is popular or not among others. To this, Jiayi acknowledged with a quiet sound of exclamation as if she suddenly realized something new.

Then she moved on quickly to provide additional rationale for her choice: in spite of her original strong interest in the field, she found out later that it would entail lots of coding which she was not particularly interested in. In essence, the decision not to pursue data analysis seemed to have demonstrated for her that she was making decisions of her own. It felt like an act of rebellion, unfamiliar and risky enough that she was still feeling a lingering tinge of uncertainty and guilt a year later: "I am still not certain whether it was right or wrong to not have followed the mainstream—what everyone else like to pursue." Having thus changed her mind based on what seemed like her own internal preference, the experience also confirmed for Jiayi the conclusion that it all boiled down to her not having sufficiently strong interests—ones that could withstand her own scrutiny or others' interventions.

Meanwhile, perhaps as a result of her growing negational perception of herself and her particular understanding of uniqueness as being different from others, Jiayi also became noticeably more weary of the idea of "following one's interest." In the first interview, Jiayi demonstrated a rather embracing or welcoming attitude toward the idea, as she mentioned: "I have changed my WeChat (a popular Chinese social media app) motto to something like 'be who you are'." By contrast, eight months later in the second interview, her attitude seemed to have changed quite substantially as she became more invested in the premed track:

> I hear this idea of doing what you like all too often, especially by those who are not Chinese, [such as] American students and mentors. Like my English tutor, she'd always say this to me, and I am getting really tired of hearing it. Every time I hear 'do what you like, find what you like,' I'd say 'but I haven't found what I like.' I'd feel time again as if this is a huge problem—that I haven't found what I like.

Describing the situation with a tinge of irritation, the motto of following one's interest has become a nuisance for Jiayi, propelling her to think more than she was comfortable with or felt

supported by. Highlighting this individualistic idea as quintessentially American and thus a culturally-specific perspective may offer Jiayi, on the one hand, some safe distance from the unyielding dilemma that was making her "feeling torn." On the other hand, by doing so to quickly regain a sense of certainty and balance within herself, she might have also missed an opportunity to look deeper into the conflicting forces and ideas that were undergirding her dilemma and will continue to shape her decision-making challenges.

Granted, given Jiayi's temperate dispositions, perseverance, and academic capabilities, she may still lead a successful professional and personal life. She may eventually find things to like about living in the U.S. and about practicing medicine that would change her current perspective. Her cross-cultural education may even be considered a triumph, providing her with a flexible citizenship and a comfortable life as a "deterritorializable" elite that many are gloomed to aspire to in the age of global neoliberal economy (Fong, 2011). Yet her immediate decisional dilemma about her major and career path was already foreshadowing a series of similar dilemmas to come.

For example, her pursuit of medicine was largely decided upon the assumption that she would remain in the U.S., as social and financial benefits for doctors are not nearly as good in China. From Jiayi's perspective, however, it was quite clear she would not enjoy living in the States: "Actually, whenever I think about staying in the U.S., I'd feel this aversion. I see how my aunt lives here, raising a family that revolves around weekly trips to Costco….I find it quite boring to live here." In other words, even though Jiayi was on the trajectory to succeed in ways that was perceived as ideal by her family and many in China, such success seemed to lack actual meaning or joy for herself. Perhaps by thinking more through the contending ideas or beliefs

that were shaping her choices, Jiayi would have come to terms with these different "pulls" by a clearer position of her own. And such grounded selfhood would have given her greater self-assurance and thus more ease in the challenging decision-making process.

4. Parallel Struggles In Critical Thinking

Interestingly, the ability to include different ideas and synthesize them into a coherent whole was something Jiayi mentioned explicitly as a challenging aspect of critical thinking. In contrast with findings from earlier studies on critical thinking as one of the most difficult and persistent challenges for Chinese students abroad, Jiayi and other transnational Chinese students captured in this study generally demonstrated less difficulty and more nuanced understanding of this prominent American educational concept. For them, critical thinking as having one's own opinion and asserting it in a classroom setting was not particularly challenging.[110] Rather, the challenge embedded in the practice of critical thinking for her and other students of the younger generation resided at a more sophisticated level:

> Coming up with one's own idea isn't so difficult. Finding evidence to back it up can be a little bit challenging. Sometimes I would have a piece of evidence and then come up with an argumentative idea. What's really challenging is to be able to synthesize different viewpoints and organize them into a coherent, overarching theme or an inclusive thesis.

Jiayi's description of the challenging aspects of critical thinking demonstrated a solid grasp of how critical thinking works, especially in college-level writing. To write critically entailed presenting a logically defensible argument of one's own, supporting it with sub-arguments and

[110] The changing experience with critical thinking among different generations of Chinese students may be related to the changing dynamic between parents and children in China, one that has become more communicative and democratic; see Liu, F. (2016). "The rise of the 'priceless' child in China". *Comparative Education Review, 60* (1), p. 105-130.

warranted evidence, and addressing relevant points of view that differ from one's own. From my experience teaching first-year composition at the university and talking to fellow instructors, this structural or technical mastery of critical thinking is either explicitly taught or implicitly expected of students in American higher education.

In addition, Jiayi alluded to a higher level of critical thinking that is less frequently emphasized in college-level courses; namely, the ability to synthesize different ideas or perspectives to create an inclusive, coherent whole or understanding. Her concern for this challenging task may also suggest a limited extent to which critical thinking might be fostered in American higher education. The general lack of requirement for diligent consideration of counterarguments, if at all, at the undergraduate level is a case in point; the reported deficiency for generating rigorous literature reviews among graduate students may be another example.[111] The fact that Jiayi was wondering about this level of critical thinking—more complex technically and philosophically than commonly required of college students—suggested her scholarly disposition and readiness for further intellectual growth. It may also be argued that Jiayi's particular sensitivity or insights into the challenges within critical thinking is also a reflection of the pressing dilemma she was encountering and her overall experience as a transnational Chinese student straddling different cultural ideologies and perspectives.

5. Learning Critical Thinking As a Transnational Chinese Student

(1) Actual means of fostering critical thinking: Formal vs. Informal education

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[111] Boote, D.N. & Beile, P. (2005) "Scholars before researchers: On the centrality of the dissertation literature review in research preparation" in *Education Researcher, 34*(6), p. 3-15.

Like many other participants in the study, Jiayi was first exposed to the concept and practice of "critical thinking" in an English-language context. In her case, it was while preparing for the SAT in China. When I asked for her definition of the concept, Jiayi deferred to what she had heard from her Chinese instructor who had coached the SAT. After a brief pause, Jiayi recalled: "my memory is a bit fuzzy now, but as I understood, it was something like to see things from different perspectives, not to be too absolute but to be aware that there are always two sides to everything."[112] Yet when she described the actual process in which she actually acquired critical thinking, it was more complicated. That is, aside from learning the structural elements of critical thinking through SAT reading and writing practices —e.g. central thesis, supporting argument, warranted evidence, and logical flow, Jiayi also attributed her understanding of how to think from different perspectives and construct arguments to discussions she had with a close friend or classmate: "We would discuss a topic from different points of view; I would support my argument from these evidence, and she would from other sources…. We would often have these scholarly conversations and discuss how to write those SAT topics." Jiayi's vivid account of her learning process with a friend suggested that not only additional aspects of critical thinking may be gained through the informal process but also meaningful appreciation was cultivated that would further motivate her to use it in other circumstances. Surprisingly, the importance of informal education in the acquisition of critical thinking was also echoed by many other participants in the study.

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[112] While the first part of the definition of critical thinking, i.e. "to see things from different perspectives," can be heard often in American higher education, the second part of the definition, i.e. the idea of "not to be too absolute abut be aware that there are always two sides to everything," seems less common in the U.S. but more so as part of the common sense in China. Growing up in China, I have often heard such admonishment from well-meaning adults to the young, as youths were generally perceived, for their lack of life experiences, to be strong-willed, idealistic, therefore partial in perception and extreme in conclusion.

(2) Particular obstacles for improving critical thinking as a transnational Chinese student

Elsewhere in the interviews, Jiayi mentioned her initial desire to continue improving her ability to think independently and logically—the lack of which was made apparent by the "macro-level questions" that emerged during her time abroad. Driven by her curiosity and finding them to be "generally helpful," Jiayi initially took many writing-intensive humanities and social sciences courses in her first two years of college. She said that in comparison to most other Chinese students abroad who were also STEM majors, she had taken a lot more non-STEM courses in the first two years of college. However, as she became an upper-division and pre-med student, there was less room in her demanding schedule for courses outside of the requirements. There was also another important factor that deterred her from taking more writing-intensive courses: the higher risk of receiving a less-than-perfect grade. Jiayi recounted her concerns and obstacles in those courses as a foreign student:

> I would have this fear whenever I was about to choose a writing-intensive course, so I've generally allowed myself to take only one per quarter…. Sometimes it wasn't even about the writing itself; it was about class participation. There were three times [courses], when my grades were negatively impacted by my participation. For example, in my current Labor Studies course, I still haven't talked in the class because some topics are just too foreign to me. Like the private prison system in the U.S. we were discussing today: it's my first time to hear that such privatization can exist. There are topics I haven't had the exposure or the time to formulate my own opinions, so it's hard to participate.

Like many other participants in the study, Jiayi said that classroom discussion was less emphasized and supported in the Chinese educational environment. Therefore, she had initially felt shy about having to speak up in class. In addition, Jiayi also seemed to share the assumption or expectation that classroom participation has to be well thought-out and meaningful—a demonstration of flawless articulation and of insight not only to themselves personally but to

other students collectively. Clarification questions and half-formulated opinions are often considered by Chinese students as “a waste of classroom time,” though they were also aware, with a mix of both criticism and envy, of the liberty and confidence in which many domestic students exercised their rights to ask questions and speak up in class. However, as a result of exposures over the years abroad to courses where active participation was required, Jiayi said that despite her concerns for the quality of her articulation, she would now actively share her ideas in class if she felt she “really had something to say.” In other words, what hampered Jiayi substantially from classroom participation was not her initial shyness or English as a foreign language; rather, it was the culturally-specific background knowledge often assumed in the social sciences and humanities courses and the way in which grades were determined also with the assumption of equal participation from everyone in these courses. Jiayi said that if more background knowledge could be provided to international students like herself, it would have been a great help. Having said that, she quickly dismissed the possibility with a lighthearted skepticism: “I don’t really think the institution here care about us that much.”

(3) Perceived pedagogical shortcomings in American higher education vis-à-vis critical thinking

Disadvantaged by university pedagogy and grading criteria that is generally not yet accommodating to the particular needs of international students, Jiayi felt constrained from taking more writing-intensive courses and missed opportunities that called more on her to think critically. This is because from her perspective, critical thinking was not often called upon or demonstrated in her academic works at the university. For example, in math: “It’s about thinking, not so much critical thinking. I once took a course on mathematical analysis, and there we were

learning theorems and applying them for problem-solving. That to me is not critical thinking." In the sciences, Jiayi felt the assigned readings often entailed explanations of scientific findings and factual knowledge. Even in the non-STEM courses, the utilization of critical thinking was largely manifested in writing assignments rather than course content or pedagogy. For example, Jiayi commented the following about a Labor and Work Place Studies course she was taking: "Its [approach] is primarily historical. It describes, for example, how immigrant farm workers… gradually organized themselves into an effective union and the kinds of strategies they used, like strike, boycott, and coalition with other groups for additional support." Even though Jiayi anticipated that the upcoming course writing assignments would require her to think seriously or critically, she did not feel the course's pedagogy approach or content presentation itself had stimulated much critical thinking.

Jiayi could potentially make up the lack of opportunities for her to hone her high-level critical thinking skills at the university by doing extracurricular readings on her own—an approach many participants described as a way for them to really gain a grasp of what it means to think critically. In a way, Jiayi seemed to have done just that. Believing that reading is "a good thing" that can "indirectly influence one's ability to think independently," Jiayi set a goal to read about 20 books annually: "Not browsing through but actually reading line by line." Yet by default, most of the readings were for leisure and professional development; they "rarely pushed me hard to think about an issue…[but] served as a way for me to temporarily escape from studying." Given the demands of her schedule and studies, her desire for easier reading to be enjoyed for its informative and entertaining value seemed to be an understandable balancing act.

6. A Missed Opportune Moment

In the end, feeling increasingly time-constrained yet still finding them intractable, Jiayi resorted to ignore the larger questions and her decisional dilemma that had first prompted her the desire to think more independently and seriously. This is because in spite of her initial readiness and desire for furthering her critical thinking ability, both her internal and external conditions were not optimal for her growth in this respect. The intense pressure to succeed as a pre-med student and her habitual deference to external authorities made Jiayi increasingly reluctant to take academic risks that may tarnish her GPA and to "do hard thinking" that may distract from her immediate goal of going to medical school. At the same time, while her ability to think critically for herself was not encouraged in her upbringing and prior education, neither was it sufficiently fostered through her courses at the university in the U.S.—at least not to the extent that she seemed to have needed academically and personally.

From an optimistic point of view, Jiayi's retreat to a more traditional or deferential way of thinking may be temporary—a temporalization in the overall trajectory towards greater independence and maturation at her own pace. In fact, Jiayi did reflect positively in general on her experience abroad, stating that her ability to make most decisions has improved over time and projecting that her capacity to think independently will likely be enhanced as well. Yet the positive changes she reportedly experienced seemed to stem largely from the sheer independence and quantity of decisions she has to make while abroad. In other words, the purported goal of higher education to improve students' thinking and decisional power was gained by Jiayi not so much from well-designed formal education as through incidental informal means, such as life experiences and opportune association with school friends. It calls upon

educators, therefore, to reflect whether a teachable moment may be missed not only for students like Jiayi but also for American higher education that claims to foster critical thinking as a crucial preparation for a democratic citizenry and a global world. If so, how can higher education live up to its purported aims and revitalize the teaching of critical thinking in service of these aims?

III. DISCUSSIONS: A CASE CAUGHT BETWEEN TWO WORLDS

The discussion section entails the following subsections: (1) analysis of the contending cross-cultural pulls that complicate Jiayi's decision-making process; (2) analysis of her internal meaning-making structure, using a psychological lens; (3) analysis of the larger social demands of late-modernity upon individuals, using a sociological lens; (4) analysis of the current state of critical thinking education through her experiences and perceptions, using a philosophical lens.

The structure or arrangement of these subsections highlights the cross-cultural perspective of this dissertation project on critical thinking—one that takes a particular interest in students' overall development and wellbeing. Detailed justifications for this perhaps atypical approach to critical thinking and the use of an interdisciplinary theoretical framework (including psychological, sociological, and philosophical lenses) have been explained in earlier chapters. It may suffice to recap here that the author adopts Dewey's view of education, in which education is perceived with the task of "co-ordinating" the social and psychological, the societal and the individual; therefore, this study examines critical thinking with reference to its influence on and function for individual students and, by extension, to the society/societies they partake in the global age.

The philosophical subsection is longer than the others and particularly emphasized because of its methodological connection to critical thinking as its original source and because of the central interests of the study: examining the nature and function of critical thinking, problematizing its existing praxis (if any), and reconceptualizing it as an increasingly salient educational concept in the global age (if necessary). In this subsection some key questions in the central debates of critical thinking will be addressed from the ground up through analyzing Jiayi's experience and perspective: *What critical thinking is, how it is fostered (or not) in higher education, as well as the way(s) in which it is applied for problem-solving across domains (e.g. academic and personal).* In this subsection, the meaning and significance of Jiayi account vis-à-vis critical thinking is interpreted with references to a lineage of educational philosophers—i.e., Plato, Dewey, and Noddings—who saw critical thinking beyond its immediate function, as typically perceived, in analyzing and constructing arguments or knowledge in a narrow/technical sense; rather, these philosophers or critical theorists envisioned critical thinking as a process or a tool for reflecting and rebuilding the self and the society upon better knowledge in a transformative sense.

1. Being Transnational: Challenge Made More Complex By Contending Pulls Across Cultures

The decision about what to study and pursue as a career presented an unyielding dilemma for Jiayi, leaving her often "feeling torn" and hesitant about making the choice on her own. Making decisions as such is difficult in its own right; for individuals who traverse different cultural

and geopolitical spaces, like transnational Chinese students, the challenge entailed in the decision-making process may be significantly more complex.

Jiayi exemplified a portion of students who straddled with greater difficulty [internal struggles] two contending worlds, each with its own set of dominant epistemological, intrapersonal, and interpersonal orientations. From where she was coming from, many in China (including her parents, it seemed) believed in going along with the tide or following existing trends as a secure path to success. Going abroad for higher education, for example, was one such trend. Once Jiayi arrived in the States, however, she was exposed to a different kind of cultural environment, in which many believed in finding one's passion as the ultimate guarantor of success and happiness. As a result, Jiayi was faced with two contending "pulls" or approaches: The former prioritized security along a prescribed path and demonstrated an undergirding epistemology that deferred to the established as the "right" way; by contrast, the latter advocated independence in defining a path of one's own and embodied an epistemology that accepted uncertainty as a fact and individual commitment as the solution.

The level of cross-cultural difficulty Jiayi experienced was in part due to her openness, as she was curious and welcoming, at least initially, to the new way of knowing and being that she found abroad; at the same time, Jiayi was also deeply embedded in a more traditional and interdependent way of being fostered at home (and the resourcefulness of her well-educated and successful family certainly lent more credibility and authority to their opinions and suggestions for Jiayi). This duality manifested in her as conflicting loyalties. On the one hand, feeling closely connected to her parents and deferential to their perspective as well-educated and resourceful professionals, she felt obligated to follow their suggestions that were typically

aligned with the norms. On the other hand, having been exposed to more freedom and individualistic values since coming to the U.S., she also felt the pull to find her own interests and meaning.

In experiencing the unresolved tension between these two internalized yet largely unexamined worldviews, roughly demarcated by the two different geopolitical boundaries[113], Jiayi vacillated between different ways of making decisions on what to major in college. For example, when applying for college in the U.S., Jiayi first chose computer science as her intended major, because "everyone else was pursuing that." Once she arrived, Jiayi was receptive to the idea of "find what you like" and began to largely follow her interests when choosing courses and a major in the first two years. Yet when her chosen major became increasingly popular among fellow Chinese students and no longer provided her with the sense of uniqueness (presumed by her to mean "being different from others") that she had started to crave since studying abroad, she sought to change it to something else. Jiayi leaned on her family for guidance which led to her pursuit of medicine: a solution that was supposed to provide her with some sense of being unique (i.e., as being different from others) as well as a good amount of what "everyone is pursuing" (i.e., financial and social security). Yet despite this promising arrangement or compromise, Jiayi had her reservations about actually practicing medicine and wondered whether taking such a self-serving[114] approach to life was really "a good idea."

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[113] And arguably different stages of modernity/different mixes of the traditional, the modern, and the post-modern orders as well.

[114] The Chinese original is "功利性," referring to an attitude that prioritizes (or is driven by) self-interest or what one can gain in terms of status and wealth. It has been translated as "pragmatic," "practical," "utilitarian," but none of these words in English seems to capture the negative connotation suggested in the Chinese original; therefore, I translated it as "self-serving" to better capture its original meaning.

In the process, Jiayi clearly wrestled with the different values and ways of decision-making that she had been exposed to cross-culturally. Yet [On the one hand,] not having delved enough to examine ideas from each side and developed her own system of making sense of the differences, Jiayi was largely following and vacillating between two systems, inadvertently pitting one against the other. When, for example, Jiayi defaulted to her family's advice and retreated back to an earlier position that prioritized security and collective opinion, she became critical of the new motto she had initially embraced abroad—"do what you like" or "be who you are"—for having generated lots of unwanted confusion for her.

Behind Jiayi's self-contained frustration and perplexity are [Yet taking a serious cross-cultural consideration of the different approaches to decision-making may entail exploring] significant epistemological and moral questions packed in [within] the process of decision-making, made more complex by its cross-cultural context. For example, should one trust one's own judgment and the uncharted path or follow the collective opinion and well-tested route? What if one's desired path conflicted with the direction dictated by one's parental authority or perceived common wisdom? How does one reconcile contending ways of thinking and being espoused unquestionably on either side—U.S. or China? Should one "code switch"—i.e. follow the dominant approach of whichever group one is associated with at a given moment— when traversing different milieus, or should one remain fairly consistent and true to one's internal values and beliefs even when they are viewed with hostility by others in the group? Can one act genuinely from an internal core yet allow flexibility in action under appropriate circumstances; if so, how? Such questions can emerge frequently as flickers of thoughts or as lasting dilemmas for someone straddling different cultures; they can also emanate from issues small and mundane

(e.g. whether to ask a roommate to speak quietly in the dorm late at night) or big and profound (e.g. what kind of life is worth living, if the prospect of one's interest does not promise financial security). And these questions can be overwhelming for individuals to grapple with alone, especially without the benefit of sufficient time and adequate support.

Not being able to address these "vexing" questions big or small may impinge on one's wellbeing. As the prominent constructive developmental psychologist Robert Kegan (1982) asserted, the ability to make meaning or make sense of our lives is fundamental to who we are and our survival as human beings, because "we *are* the meaning-making context" and "the activity of being a person is the activity of meaning-making" (p.11). In instances where we are unable to make sense of our experiences and choices, we "experience [them] as the loss of our own composure" (p.11). While Kegan seemed to think such instances are "occasional," Jiayi's case suggests that it may not be so rare for those who are transnational and cross-cultural.

2. Analysis From The Perspective Of Constructive Developmental Psychology

Yet the intensity of Jiayi's dilemma did not stem exclusively from the intrinsic intellectual/philosophical difficulties embedded within the contrary ideas and worldviews that she was encountering. From the lens of constructive developmental psychology, particularly the three dimensions of human selfhood and development (namely, the cognitive, the intrapersonal, and the interpersonal dimensions), Jiayi's decisional quandary also had a lot to do with the ways in which she processed ideas, perceived herself, and related to others—i.e., her three-dimensional meaning-making structure—as analyzed below.

In the *cognitive dimension* of how we think and perceive knowledge, Jiayi demonstrated an epistemic position that is deferential and binary in her decision process. For example, long after she had made the decision not to major in data science because of its growing popularity and because of her perceived lack of strong interest in aspects of this field, she was still wondering whether she had done the right thing: "I am still not certain whether it was right or wrong to not have followed the mainstream—what everyone else like to pursue." Her concern exhibits/exhibited a binary right/wrong thinking that was also other-oriented, in which "they" or "everyone"—the collective others—were presumed to be in the position of authority and therefore the right, and "me"—the individual self—was automatically suspected as the wrong for the differences one may possess.

This other-oriented nature in Jiayi's cognitive dimension is also manifested in her *interpersonal dimension* or the way in which she related to others. For example, she maintained frequent communication with her family while abroad and often deferred to their opinions when making important decisions. Even in instances where Jiayi intended to act on her own, her thinking exhibited responses that were either directed towards or against others' opinions or actions. As in her effort to be unique, for example, the idea of "uniqueness" was understood by her as being different from others rather than being true to oneself; consequently, when her initial interest in data science was becoming widely popular, robbing her of her sense of uniqueness, it became a compelling reason for her to switch out of it.

Inextricably linked to this deferential and other-orientation in her interpersonal and cognitive dimensions is Jiayi negational attitude toward herself in the *intrapersonal dimension* or the way she perceived herself and recognized or not her interests and experiences. For example,

Jiayi often described her innate interests negatively as being "insufficiently strong," while allowing herself to pursue other options more agreeable to her family. She perceived the ultimate source of her dilemma to be her own lack of strong interests, even though interests often grow in strength through cultivation or diminish in vitality through negation. Although desiring to be unique, she did not make a conscious connection between that desire and the need to affirm or develop her interests. In fact, with an epistemological assumption that prioritized what others think or value, Jiayi was not only inclined to lean on the advice and opinions of the trusted others, but also prone to feel fearful for making her own decisions on important matters: "I found making decisions difficult, not being able to take the responsibility that comes along with making decisions."

Curiously, in terms of "responsibility," Jiayi was in fact far from being irresponsible. Her actions often demonstrated characteristics typically associated with being responsible: great perseverance, diligence, and discipline in carrying out a decided or prescribed goal. Without perhaps realizing this new form of "responsibility" she was struggling belonged to a different sort—i.e., the ability to withstand uncertainty, mistakes, and risks in deciding what the goal or action should be. In other words, such responsibility is about deciding the *what* rather than executing the *how*, and the transition to making commitment to this new or additional form of responsibility starts with following one's own voice or inner compass. The daunting challenge for Jiayi here lies not only in the precarious uncertainty and risks that come along with venturing off of the beaten paths, but also from her lack of prior experiences in making decisions of her own and thus exposure to this new form of responsibility.

From the perspective of constructive developmental psychology, being able to take on such responsibilities entails a more advanced phase of development in all of the three dimensions—cognitive, intrapersonal, and interpersonal. First, this new form of responsibility necessitates a different kind of undergirding epistemology, in which an "individual consider knowledge grounded in context…. [and] actively construct meaning based on evidence and make commitments in a relative world" (Boes, Baxter Magolda, & Buckley, 2010, p. 8). Second, along with this new form of epistemology are correlative transformation in the intrapersonal and interpersonal dimensions, characterized by loyalty to one's inner voice and internally generated standards as the guiding source for evaluating oneself and managing relationships with others. In other words, responsible individuals as such depends not on external authorities to shape their decisions, but on their internal "self-authoring" capacities for meaning and decision-making.

Yet growth in these three dimensions may not happen easily, especially for individuals with a strong "constellation of countervailing forces," composed by "the wish to retain earlier satisfactions or securities, the wish to maintain community in family or hometown values and ways of thinking…and most importantly the wish to maintain a self one has felt oneself to be" (Perry, 1970, p. 52). In other words, growth as such emerges out of the tension between two conflicting forces: "the urge to progress" and "the urge to conserve" (Perry, 1970, p. 52), and the extent of such growth depends on the strength of each of these contending forces. In Jiayi's case, it seemed that not having had sufficient time or support to develop an integrated self in the challenging context of cross-cultural development, her urge to conserve and succeed outweighed the urge to progress and adventure.

3. Analysis From The Sociological Perspective On "Late Modernity"

While Jiayi's default back to her family and a secure path may be perceived as a retreat or temporization in her overall developmental trajectory from a psychological perspective, it may also be understood, from a sociological perspective, as an understandable measure of protection against the myriad risks latent in the current era of late modernity.

As delineated in greater detail in the theoretical framework chapter, the concept of "late modernity" was coined to highlight our present era as a continuation or heightened stage of modernity. According to Giddens (1991), late modernity is not a "post-knowledge" but a "hyper-knowledge" age, even as the very mechanism of critical doubt and inquiry—which had propelled much of the scientific progress and faith in human rationality since the Enlightenment—has turned around to shake the very foundation of knowledge and afflicted societies in the West with great uncertainties. As a second phase of the modern period, late modernity is marked by "systems of accumulated expertise" created through efficient scientific knowledge production (Giddens, 1994, p. 95); at the same time, with convenient transportation and rapid technological advancement, these "internally contested" systems effectively dis-embed people from the hold of tradition. As a result, people today live with much greater freedom as well as "multiple sources of authority" and a "puzzling diversity of options and possibilities" (Giddens, 1991, p. 3).

Therefore, late modernity is also a "post-traditional" order, where knowledge no longer provides certitude but "mere hypotheses," and where individuals are no longer bound to nor protected by traditions. With the retreat of traditional institutions, decisions that used to be made collectively in traditional cultures and guided by established norms are now forced upon individuals. Traditions may be relevant, but only as another resource for individuals to choose

and use at their own discretion or purposes. Suddenly, the individual is given a seemingly infinite amount of choice and freedom, with which they must choose among contending expertise and authorities.

As Beck (1992) asserted, the disintegration of traditional orders as well as the imposition of market-oriented social institutions on individuals to constantly upgrade their "do-it-yourself biographies" constitute the conditions in which people must operate in late modernity. Moreover, individuals are required to not only make choices constantly but also fast "as in a reflex" (Lash, 2002, p. ix). These demands contribute to increasing risk, anxiety, and existential crises for individuals, or what Beck called "the impossibility of living modern life," in the late modern age (Beck & Beck-Gernsheim, 2002).

This late modern condition exists not only locally in the developed West today but also globally "in countries that have abruptly opened their doors to Western ways of life. People in other countries are also caught up in a dramatic 'plunge into modernity'" (Beck & Beck-Gernsheim, 2002, p. 2). In tracing the everyday life changes in contemporary China and their underlying causes, Yan (2009) observed that elements of pre-modern, modern, and late modern coexisted as a result of China's state-sponsored globalization and individualization processes. Living in this "multilayered and multi-temporal mix" (Yan, 2009, p. 291), Chinese youth in the past few decades have become less constrained by the order of tradition and more "proactive and self-determining," though remaining, in general, socially compliant to collective values of traditional institutions, such as the family (p. 275).

In light of this sociological analysis of our present era, Jiayi's story may be seen as a paradigmatic example of the challenges living in the age of "hyper knowledge," mass mobility,

and individualization[115]. Her internal conflicts reflected tensions in navigating the "multi-temporal" and multicultural mix of ideas, options, and obligations—especially for those who traverse from one world to another. Seen from this sociological perspective, the decisional dilemma Jiayi experienced reveals a meaning-making structure that was perhaps not molded to respond to the psychological demands (e.g. risk-taking independence) of late modernity; at the same time, her concerns for the potential risks and the unknown suggests a kind of cautious sensitivity perhaps necessary for the precarious conditions of late-modern life. Therefore, her retreat back or re-embedding herself in the safety-net supported by her family may be perceived as a prudent measure of self-protection and conservation in a time of uncertainty and lack of readiness.

While Jiayi's default choice or temporization may provide some needed psychological relief for the time being, it may inhibit her growth and well-being in the long run when grown into a habitual position. This is in part because similar tensions and decisional dilemmas will foreseeably repeat in Jiayi's future, leaving her feeling torn and frustrated. It is also because conditions of late modernity demand individuals to constantly upgrade and "remake the self" (Yang, 2010, p. 505)—i.e., a self that would be at ease with venturing into new territories, interpreting varied experiences and claims, and taking the responsibility of making critical decisions of one's own. Such capabilities stem from a grounded sense of the self that has reached, as advocated by constructive developmental psychologists, a high level of "maturity" in

[115] According to Yan (2010), who cited Beck (1992), the term "individualization" refers to "a categorical shift in the relation between the individual and society (1992: 127), meaning the self-radicalization of modernity has set the individual free from most previous all-encompassing social categories in industrial society, such as family, kinship, gender, and class, and has emerged as the reproduction unit for the social in a risk society (1992: 90)" (p. 489-490).

all three dimensions—cognitive, intrapersonal, and interpersonal. What then can be done through education to foster this meaning-making capacity necessary for learning and living in the late-modern world? If education "is to co-ordinate the psychological and social factors" as espoused by Dewey (Biesta, 2006, p.29), then Jiayi's story, however partial it may be, illuminates the internal state of the individual and the structural forces of our world today that educators should take into consideration in designing curriculum and pedagogy.

4. ANALYSIS FROM A PHILOSOPHICAL PERSPECTIVE

As critical thinking is purportedly central to education in the U.S. (and with increasing popularity around the world), the following subsection explores the *what* and the *how* it has been taught and *whether or not* it meets the needs of students in the late-modern era.

(1) Formal vs. informal educational pathways for critical thinking

By Jiayi's account, formal education (if we generously include SAT or other college-preparatory venues as part of it) did foster her critical thinking to an extent, though aspects of critical thinking she acquired through formal means were arguably different from those gained through the informal educational pathway with a close friend outside of the classroom. More specifically, in formal education, academic writing, along with reading to a lesser extent, was the chief source of exposure to critical thinking for Jiayi. Starting with practicing for the "critical reading" section of the SAT, Jiayi gained a basic grasp of what she should be looking for in comprehending and analyzing a piece of writing: e.g. central thesis, logic, and author's rationale or explanation. Arguably, this training in reading paved the way for academic or "critical" writing,

which entailed for Jiayi the following components: “writing a central argument, expanding it with supporting arguments, and verifying claims with evidence—done through my own thinking and in a manner as thorough as possible.” Together, academic reading and writing work complementarily in providing students with the same structural understanding about argumentative essays and foster some similar dispositions of critical thinking, e.g. intellectual thoroughness, diligent concentration, and logical-mindedness. At the same time, they also cultivate arguably different dispositions and skills: While academic reading trains one to withhold one’s previous understanding or opinions about a given topic in order to fully understand a piece of writing and its author’s perspective, academic writing requires more active engagement from an individual in the sense that one has to think independently, assert an argument of one’s own, and apply evaluative judgment based on one’s selective criteria.

By contrast, through regular intellectual discussions with a friend as an informal educational pathway, Jiayi seemed to have experienced additional aspects of critical thinking that were different from those gained through formal education (i.e. independent thinking and intellectual thoroughness); namely, an appreciation for seeing things from multiple perspectives and a desire to inclusively synthesize contending viewpoints for a more comprehensive understanding or assertion on a given topic. This is because while preparing essay topics for the SAT Writing with her friend, Jiayi gained an in-depth understanding of her friend’s perspective on various topics that was different from her own. This fortuitous yet eye-opening learning experience not only deepened their friendship but also seemed to have inspired Jiayi intellectually to seek a level of critical thinking that was more sophisticated than what is typically targeted by the SAT or college-level writing. It can also be seen through her account that to gain

a deep appreciation for multiple perspectives was to experience the value of diversity that promoted further inclination to include the other.

Jiayi's case arguably demonstrates a stronger interpersonal dimension in the acquisition of critical thinking than what may be commonly recognized in formal education. That is, Jiayi gained the important diversity and inclusion component of critical thinking through informal means or discussion with a friend, which highlights an interdependence of the other in the uncovering of one's assumptions and discovering of new perspectives. And heightened curiosity stimulated by the valuable interpersonal connection may further stimulate Jiayi's intellectual and intrapersonal development, as expressed in her desire to synthesize contending perspectives which would invariably expanded her understanding of the world and idea of the self. By contrast, formal training and conceptions of critical thinking in higher education, such as through college-level writing, typically prioritize the independent cognitive component of critical thinking, emphasizing what one thinks and how one presents a warranted and logic argument rather than what can be said about a given topic based on a diversity of different viewpoints, including one's own. While such exercise on strengthening one's independent thinking and assertion is crucial for clarifying one's viewpoint and supporting one's individuality, it may unwittingly narrow one's capacity to expand and consider alternative explanations and evidence that differ or contradict one's chosen position.

This informal but powerful learning experience echoes Dewey's vision of what education (broadly defined, including both formal and informal education) should be in a democratic society, i.e., an education that is invariably communicative, and communication educative, where each side of the communication would "have an enlarged and changed experience. One shares

in what another has thought and felt and in so far, meagerly or amply, has his own attitude modified" (Dewey, 1916 [2012], p. 8). Seen from this Deweyan perspective, Jiayi was having such an educational experience that helped expanding her thinking and cultivating certain "voluntary disposition and interest" in relation to practicing critical thinking as an intellectual stimulating and personally rewarding process. Even though this communicative sharing and learning experience, according to Jiayi, did not happen in any course (i.e., SAT or otherwise) but outside of it with a friend, there is no reason why it cannot be part of formal education as an effective pedagogy for fostering critical thinking.

Perhaps it may be argued that having an appreciation for multiple-perspectives and a desire to synthesize them into a coherent view belong to the disposition/affective rather than the skill/technical aspect of critical thinking. When push comes to shove, these aspects would likely be recognized as parts of critical thinking by educational theorists as well; however, they are not being consistently implemented or required in college-level writing. In fact, it can be argued that these aspects appear "dispositional" (a "soft" category that conveys the connotation of vagueness, intangibility, and thus lesser importance, in comparison to "hard" skills) because they have not been sufficiently implemented into the university pedagogy or curriculum, e.g. as part of essay structure for critical writing. It is entirely imaginable and feasible, albeit it with challenges of its own, to translate these "dispositional" aspects into concrete tasks or skills, e.g. a writing criteria or structure that require inclusion of different perspectives and/or well-presented counterarguments as a necessary part of presenting a comprehensive and warranted argument.

In other words, various kinds of dispositions can be fostered or inhibited through the types of pedagogy, curriculum, and evaluative criteria that are being designed and implemented vis-à-vis critical thinking. When writing instructors, for example, adopt a typical pedagogy and evaluative criteria that prioritizes individual assertion, logic, and evidence, it may foster dispositions such as independence and assertiveness, while unwittingly suppresses dispositions like interdependence and inclusivity. By contrast, if more "engaged,"[116] inclusive, and communicative dispositions are to be fostered, existing conception of critical thinking needs to be reconceptualized and its corresponding pedagogy should be revised. For example, feminist philosopher of education Noddings (2012) has been advocating an alternative approach to critical thinking where the aim "is not only or always to produce the best argument but to connect with others in a way that would make the world demonstrably better" (p. 102). If writing courses follow this version of critical thinking, students would be allowed to express their criticality through a greater variety of writing and modes of expression. Vice versa, if students are not encouraged to consider the other seriously, such as the missing emphasis on counterargument or contending viewpoints typical of the college-writing process may potentially do, contrary dispositions or attitudes may be unwittingly fostered, such as overconfidence in one's opinion, low tolerance for countervailing ideas or the different other, and intellectual complacency that stops one from searching for more comprehensive understanding of events and truth.

[116] A number of participants described their experiences in applying critical thinking in the personal domain as being more "engaged" or "involved" than in the academic domain, i.e., more (dimensions) of themselves were involved.

(2) Critical content vs. process in the teaching of critical thinking

Formal education may unwittingly impede a fuller development of critical thinking among its students in another way, by teaching and emphasizing critical content over critical thinking process from which such content is generated. This pedagogical conflation seemed to have contributed to Jiayi's description of a relatively low level of demonstration and impetus for critical thinking across disciplines in higher education.

Arguably, her description of the lack of critical thinking in the STEM fields may not be as surprising, for it might just highlight her perception of critical thinking as something greater than logical thinking or analytical problem-solving. While this assertion may challenge a popular claim of critical thinking as essentially informal logic, thus transferable across disciplines, it may be explained away by the particular source of exposure she had first learned the concept of "critical thinking"—i.e., through academic reading and writing. It can be argued that, as many early critical thinking theorists did, if the focus is on the common denominator of "critical thinking"—i.e., logical reasoning—among all disciplines, then an abundance of critical thinking application can be found in the STEM fields as well. Interestingly, however, this reductive and logic-focused view of critical thinking is not typically shared by student participants in the study.

By contrast, the other part of Jiayi's assertion on a low to moderate level of critical thinking in the non-STEM fields may be more concerting and harder to disregard for its potential portent. After all, the humanities and social sciences—or the "non-practical" disciplines—often cite the cultivation of critical thinking as something they do best or as their raison d'etre.

According to Jiayi, some social science courses she had taken conveyed content messages that were "perhaps not entirely leftist but [at least] a bit activist," adding that "my aunt said that

what I am learning might be problematic when I go back to China." And activist lens or perspective is by nature socio-political and critical in the sense that it aims to critique, improve, and potentially subvert the existing system and power dynamic that disadvantage certain populations. Yet in spite of the perhaps obvious link between "activist" critique and critical thinking (i.e., as applied to analyze social system and injustice from the perspective of the disadvantaged populations), Jiayi concluded that the course in Labor and Work Place Studies, for example, "didn't employ much critical thinking" other than what she could gather in some of the readings and when doing the writing assignments. Jiayi's evaluative assertion of a disconcerting absence of critical thinking in higher education certainly had to do with her perception of it as a capacity or praxis to see things from different perspective or, better yet, to synthesize different perspectives into a coherent whole. By contrast, it sounded like the course was offering one perspective, albeit a critical or radical perspective that challenged the traditional narrative that typically prioritized top-down economic perspective and ignored the interests of disadvantaged populations at the bottom of the economic ladder. Therefore, in spite of it being perhaps a product of critical theory—arguably a particular form of critical thinking applied to analyzing and critiquing social institutions and systems—the course did not pedagogically foster critical thinking, at least not in the sense that Jiayi anticipated or immediately needed**.** In other words, in her mind, there was perhaps a subtle but significant difference between critical thinking content (e.g. socio-political critique/critiquing) and critical thinking process that was, however, overlooked in the teaching of non-STEM courses as well.[117]

[117] Jiayi's description of non-STEM courses were largely in the social sciences; little was discussed of the Humanities.

In other words, from Jiayi's case, it can be argued that the essence of critical thinking education lies not so much in the idea content or product of thinking but rather in the process and competence for a certain type of thinking that is logical, thorough, and inclusive. This emphasis on process over conclusion echoes Nel Noddings' concept of "pedagogical neutrality," in which she asserted that while teachers may have moral stance or opinions of their own, they should maintain in teaching by presenting multiple perspectives to students for them to think through. In Noddings own words: "Teachers have a special obligation to present all sides and submit the various arguments to the judgment of their students;" additionally, "[teachers] are to do more than lay out all sides; we must also help students to apply the appropriate criteria" for evaluating the provided claims (Noddings, 2012, p. 104). Pedagogically, critical content such as socio-political critique is only a part of critical thinking, yet arguably a less important part pedagogically in comparison to the process of thinking critically.

The pedagogical importance in focusing on the process rather than the content can also be further illuminated by drawing upon Plato's distinction between opinion and knowledge, in which knowledge can be defined, in a simple term, as true opinion with warranted justification or "justified true belief" (Fine, 2009, p. 254). This definition suggests that may possess an opinion or claim that is true, yet unless one knows thoroughly the rationale or warranted justification that goes along with it, one cannot be said to possess knowledge. Put differently, true opinion or belief can be seen as second-handed knowledge, transmitted and acquired rather than examined and understood. From this philosophical perspective, much of education can be said to constitute, at its best, transmissions of truth claims/beliefs/information rather than knowledge, since the undergirding rationale, process, and epistemological controversies are not

often explained to students, even at the tertiary level. Likewise, socio-political critiques based on critical theory, however closer to truth they might be than previous interpretational lenses, might still be acquired as opinions or second-hand knowledge, unless it is taught in a self-reflective, pedagogically neutral way about its own assumptions, limitations, as well as strengths. Even though perceptive students like Jiayi may not have the philosophical background or epistemological tool to analyze and critique their educational experience, they were aware that most of their learning in higher education constituted relatively passive acquisition of knowledge as information and its application rather than active engagement with knowledge as construction out of an iterative and creative process.

If the educational purpose, especially at the tertiary level, is to teach knowledge rather than opinions and to develop students' competences for creating further knowledge of their own, then the process in which existing knowledge or true claims are made must be presented to them. This would mean to demonstrate the messy social and intellectual reality out of which knowledge is forged, developed, and disseminated to become part of our reality and common sense. While such teaching or pedagogical neutrality may invariably make teaching more complicated in a way, especially given the lack of its praxis currently, it might generate intellectual richness and be more effective in helping students like Jiayi to gain the independence and higher skills (e.g. synthesizing contending ideas) that they need for developing better critical thinking capacity and habit.

(3) Unconscious vs. conscious learning and applying process of critical thinking

Parallel to the lack of emphatic teaching of critical thinking[118] in formal education is perhaps Jiayi's sense of her learning and applying processes of critical thinking have largely been unconscious: "The learning process is usually not self-conscious such that I am currently not 100% sure if my critical thinking has improved a lot or to what extent." As explored in the previous subsection, in the academic domain, other than her initial exposure to critical thinking (i.e., via SAT preparation) and application of it in writing—both of which she was able to describe with some clarity and detail—Jiayi did not feel critical thinking was often demonstrated or called upon in her university learning. And this sense of unconscious, almost vague, praxis of critical thinking was also manifested in her personal domain, where Jiayi's description of it for decision-making or problem-solving essentially boiled down to "weighing the pros and cons."

Jiayi's description of her largely unconscious acquisition and application processes of critical thinking deserve closer consideration. On the one hand, the unconscious nature might suggest that critical thinking has become an integral part of academic learning in American higher education (in the form of critical content and/or process), and students like Jiayi can acquire it by just being immersed in the academic culture and attending to the courses, assignments, and discussions with instructors and other students. Likewise, the unconscious application of critical thinking might also suggest, as Jiayi herself interpreted it: "This skill is perhaps somewhat incorporated into my behaviors in daily life."

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[118] By "emphatic," I mean clear, explicit, purposeful teaching of critical thinking that purposefully foster students' critical thinking capacity instead of merely transmitting critical perspectives or beliefs.

On the other hand, unconscious learning may also suggest a lack of necessary teaching, one that contributed to Jiayi's unclear sense of her improvement in this area, or what was expressed by other participants as a vague sense of "what is critical thinking?", in spite of its popular usage in education settings. As Jiayi reflected, even though she was aware her need to think more independently and critically, especially when confronted with complex macro-level socio-political or existential problems, she had often let the issue go unaddressed: "even if I recognize my weakness in this area, there haven't been many situations that would expose this weakness, so the impact isn't great; it doesn't appear to be so important, so I just let it go." It can thus be argued that, as a result, Jiayi's critical thinking learning and development was not only unclear but relatively insignificant in college, remaining at a level that was insufficient for her to effectively face complex problems outside of her courses requirements.

Similarly, in the personal domain, Jiayi's unconscious application might also suggest a lack of robust practice of critical thinking there. For example, when asked about the impact of critical thinking on her decision-making, she responded positively at first: "Yes [there is a connection], I had to make so many decisions especially this year; sometimes I was able to make decisions very quickly." But then she added less confidently with regard to its function in big decision-making or complex problem-solving: "There are many things to consider, especially with regard to my future major, I felt torn for a long time…. I feel decision-making [of this sort] is quite difficult. But in the decision process, I would consider the pros and cons, I would also listen to others' suggestions."

Jiayi's account of her decision-making process seems to suggest a different type or quality of critical thinking in being applied in the personal domain, one that centered around weighing the pros and cons and listening to others' opinions instead of prioritizing her own assertion in light of evidence. This lack of discernment of the different types of critical thinking at work across different domains might have further contributed to Jiayi's relatively limited criticality and binary nature of her thinking in the personal domain. It was actually not uncommon to hear from Chinese student participants in this study to define critical thinking as weighing pros and cons, especially in reference to personal decision-making. One may reasonable ask *how does critical thinking as weighing the pros and cons compare to critical thinking as considering one's own assertion with supporting evidence (the kind Jiayi used in academic writing) or synthesizing multiple perspectives (the kind Jiayi hoped to do)?*

On the one hand, weighing as evaluating a given choice is arguably an aspect or form of critical thinking; on the other hand, weighing or evaluating in itself can be quite limiting and done in an uncritical manner. Weighing the pros and cons could simply mean applying a certain set of criteria unexamined to judge something's worth from a predetermined or biased frame of reference. Evaluation can be done critically or philosophically, for example, when implicit criteria or standard by which the pros and cons are assessed are made transparent through explanation, justification, and/or comparison with other potential alternatives. Said differently, critical thinking as a cognitive process invariably entails some forms of evaluation or discernment, whether it is to evaluate the soundness of evidence and logic of an argument or to establish a position or judgment of one's own on a given topic or controversy. At the same time, to think critically also means to have a reflective awareness of the evaluative criteria one is using, of the criteria's assumptions or limitations and therefore the need for a potentially better alternative.

In Jiayi's case, there was critical thinking as evaluation or weighing the pros and cons in the personal domain, without sufficient inquiry into the evaluative criteria by which the pros and cons were being assessed. For example, having adopted, albeit with some reluctance, a more "mainstream" approach espoused by her family, her decision to study medicine focused primarily on the pros (i.e., socio-economic benefits prioritized by the mainstream perspective), while largely suppressed the cons (i.e., her inner voice or reservations about this career path). By contrast, in making her earlier decision to switch out of data analysis, Jiayi highlighted lots of the cons: e.g. too many students joining the field, too much competition, losing her sense of uniqueness, and finding aspects of the study not as interesting, etc. Granted, in this earlier instance Jiayi was employing a different set of evaluative criteria or a different approach that prioritized "uniqueness" rather than socio-economic gains; however, in both instances there appeared to be an unquestioning assumption about the undergirding criteria or values that were supporting her evaluation or choice, resulting perhaps an unconscious but selective seeing of the pros and cons in each decision-making stages.

Arguably, such a complex yet subtle cognitive process of decision-making can be improved by the use of critical thinking as a tool for examining one's implicit criteria and its alternatives. For example, applying critical thinking as proposing one's own assertion with evidence, Jiayi might try harder to gather more evidence and establish a firmer conviction in her own assertion or judgment. In addition, applying critical thinking as considering multiple perspectives, she might give more consideration to her actual experience and reservation about choosing medicine. As a result, she might explore more seriously her own inclinations and other options that she might actually enjoy—not only conceptually as a normatively worthy pursuit but

also in action as personally gratifying work. We will return to this topic of how critical thinking can be applied to facilitate complex decision-making in the personal domain in a later subsection.

(4) Transferability of critical thinking across domains

Juxtaposing Jiayi's critical thinking as applied in her decision-making process with her use of it for academic writing, clear contrasts come to the fore also in terms of different epistemic sophistications, which raises questions about the often presumed transferability of critical thinking across domains.

In Jiayi's personal domain, critical thinking applied as weighing the pros and the cons—as expounded in the previous subsection—corresponded to an epistemic position that was largely deferential (i.e., deferring to the external authority, be it her parents or the perceived collective "everyone") and also binary (i.e., right or wrong). By contrast, in the academic domain, Jiayi's description of critical thinking was demonstrably more sophisticated, conveying an epistemic position that was also more complex: "First, you have to sort out your own take [on a given topic]; for example, in an essay I would need have a central argument and three supporting sub-arguments that expand upon it. Then, I would add evidence to prove [my assertions]. In other words, I have to think on my own, trying to be as thorough[119] as possible." Here, in the context of academic writing, Jiayi's more complex epistemic position suggests an implicit understanding of knowledge or knowledge claims as contextual—i.e., constructed or supported by evidence and thus varied depending on the perspective and evidence being used. In addition, her recognition of a higher challenge in applying critical thinking in writing—i.e., "to synthesize different

[119] The original word in Chinese is "全面," which also conveys the meaning of being "inclusive" or "comprehensive".

viewpoints and organize them into a coherent, overarching theme or an inclusive thesis"—also indicates an intellectual openness and ambition beyond what is typically required by college-level writing (focused by and large on establishing one's warranted argument or point of view).

Jiayi's advanced epistemic position or cognitive dimension with regard to academic work exemplifies what constructive developmental psychologists called the "self-authoring" or a mature stage of development. As Baxter Magolda (2004) described:

> Cognitive maturity requires viewing knowledge as contextual or as constructed using relevant evidence in a particular context. A contextual view of knowledge recognizes that multiple perspective exist, depending on how people construct knowledge claims. It further requires the capacity to participate in constructing, evaluating, and interpreting judgments in light of available evidence and frames of reference. (p. 9)

In the same paragraph, Baxter Magolda also asserted that this increased cognitive maturity would translate to an internal development for decision making:

> Contextual knowers construct knowledge claims internally, critically analyzing external perspectives rather than adopting them uncritically. Increasing maturity in knowledge construction yields an internal belief system that guides thinking and behavior yet is open to reconstruction given relevant evidence. Cognitive outcomes such as intellectual power, reflective judgment, mature decision making, and problem solving depend on these epistemological capacity. (p. 9)

Yet, in Jiayi's case, while her cognitive sophistication is evident in the academic domain, arguably fostered through her acquisition and exercise of critical thinking in writing and variedly in other university courses, equal cognitive complexity is not manifested in her personal domain. It may be argued that what Jiayi relished intellectually as something meaningful and beneficial—i.e., seeing things from different points of view in academic contexts—seemed to agonize and confuse her in personal decision-making, e.g. about what to study and pursue as a career.

The unequal cognitive manifestation in different domains highlights a potentially more complex nature of high-stake personal decision-making where the use of mere rational reasoning

may not suffice; it also raises question about the transferability of cognitive capabilities across domains. At least in Jiayi's case, the interpersonal and intrapersonal dimensions seemed to have played greater roles in her personal domain, hindering the development and/or expressions of her actual cognitive complexity. In personal decision-making, she was constrained by interpersonal power dynamic (i.e. with her family members) and affected by an intrapersonal attitude that tended to negate her own choices, making her less free to exercise the kind of cognitive independence she knew conceptually and was able to practice more freely in academic contexts.

This complex interconnection of the three-dimensions of learning and meaning-making structure, as evidenced in Jiayi's case, may challenge a prevalent assumption of critical thinking as a generalizable and transferable skill across not only different disciplines but also various domains. As Fisher (2001) asserted: "critical thinking is a *skillful reasoning* that is generalizable, transferable across disciplines, and applicable to academic learning as well as to everyday life." Prevailing pedagogy based on this view is to teach critical thinking as a set of general reasoning skills that once learned in schools, it would automatically be applicable in other contexts. Jiayi's case, however, problematizes this appealing assertion (one which gained critical thinking lots traction in higher education) and pedagogical approach, suggesting rather that for students to develop holistically and be able to exercise the same kind of cognitive maturity in both academic settings and personal decision-making, explicit stimulation and educative support should be provided to encourage them applying critical thinking not only in academic contexts but also in personal settings.

This suggestion may also extend King and Kitchener's (1994) critique, in which they asserted that the dominant conception of critical thinking and its corresponding pedagogy often avoided the "ill-structured" complexity and uncertainty in real world problems and failed to take into account the essential role of "epistemic assumptions"[120] in identifying and solving complex problems; they argued that without the necessary development of epistemic sophistication, reflective judgment (or critical thinking) would not take place or be applied to problem-solving. Through Jiayi's case, it can be further argued that for students who experience more constrains in the interpersonal and intrapersonal dimensions, their ability to gain strengths in these dimensions would be foundational to developing an advanced epistemic position necessary for complex problem-solving in the personal domain.

It can be postulated, therefore, that while transferability of cognitive maturity (in general) and critical thinking (specifically) may be possible theoretically across domains, the actual level of transferability may vary among individuals for different domains, depending on their attitudes toward themselves (intrapersonal) and the amount of liberty or obligation they feel toward others (interpersonal) in each domain. This would mean that pedagogically, an advanced epistemic position or cognitive dimension developed in and for the academic domain alone may not be sufficient for effective application/praxis in other domains, such as the personal or the socio-political. Rather, for students to have critical thinking competency across domains, explicit and specific instruction and praxis of critical thinking needs to be initiated, tailoring to the complexities of each domain, if not also to their own unique circumstances.

[120] King and Kitchener (1994) defined "epistemic assumptions" as assumptions about knowledge and "the basic differences in assumptions about what can be known and how knowing occurs differentiate authority-based thinkers from who use reflective thinking" (p. 9).

(5) Use of critical thinking for complex problem-solving in the personal domain

How may critical thinking be applied specifically to facilitate Jiayi's decision-making challenge? As we recall, while considering what to study and what career/life to pursue, Jiayi was initially receptive to the new ideas exposed abroad, pulling her to "be unique," "be who you are," and "do what you like." These ideas had an immediate appeal to her, some of which (e.g. the idea of being "unique") were integrated into her identity or the way she perceives herself. While these quintessentially American ideas may be understood as interconnected—i.e., that to be "unique" could mean "who you are" by "doing what you like"--, Jiayi did not interpret as such. Rather, out of a habitual thinking that was more other-oriented, she perceived "unique" largely as being different from others. Perhaps had Jiayi recognized the competing outlooks across cultures and the complexity or significance of the problem she had to face,[121] she might have applied critical thinking to assist her in the decisional process as she normally would in academic settings: "[When] trying to write essays that expresses my opinions…I would think critically when I am really contemplating something, as I would become very serious, and try to take into account as many things as possible."

By applying a similar "serious" thinking process to her decision-making, Jiayi could ask: *What does this popular American phrase or motto "be unique" mean?* Recalling that there are often different perspectives or interpretations on the same topic, she could ask further: *What*

[121] It can be argued that the lack of due recognition of problems in the personal domain as complex, significant problems worth thinking, discussing, and investigating is itself a problem at the personal (a Chinese student) and the institutional (American higher education) levels, suggesting what Dewey and Michael Apple referred to as a mind-body split problem in American education that can be traced all the way to ancient Greek philosophy or origin of Western philosophy. More exploration of this mind-body split or prioritization of the mind over the body, the intellectual/academic over the personal domains will be discussed more extensively in a different chapter.

might be the different ways to interpret this phrase? In considering this question, she might become more aware of her conceptualization of "uniqueness" and what that means similarly or differently for others. She might even go on to seek other perspectives or gather more information and evidence to address these related questions: *What are the pros and cons for being unique as being different from others vs. being unique as being oneself? Why is it important to be so either way? What does it mean to be oneself?* At this point, she might recall the practice of making her own assertions and seeing knowledge construction as contextual in writing and then ask herself these following questions to generate a needed position for making decisions of her own: *Who am I? What do I like and value? What is really necessary and indispensable for me, and what is desirable but not a priority for me?* She might then recognize that there are two divergent paths—to follow one's inner compass or to go along with others/the norm—and that she might need to scrutinize both by asking further: *Out of what context did each approach come from? And for what purpose do they each serve? Does each have some merits in itself, and merits for me in my current situation? What is my situation? Does my situation or context correspond to the sociopolitical/economic/cultural contexts in which these approaches come from or aim to address? What is that makes me feel attracted or obligated to respond to either or both of these paths?*

Questions like these may go on and on, until they reach a saturating or satisfying point. Perhaps Jiayi would realize that not all of these questions can be or need to be addressed at the same time; however, through such questioning, she has already gained a better understanding of herself and of the contending claims or options available to her. She would come closer to see whether an alternative or an inclusive middle-ground can be forged through critical thinking (as

she anticipated that a higher level of this thinking could). Even if such a synthesis is not possible at the present, she would at least come to appreciate the complexity of this decision-making process—especially in cross-cultural context—and consequently come better terms with the path she has chosen, recognizing its current limitation and temporary nature and perhaps remaining curious and attentive to new alternatives. Jiayi might still arrive at the same solution—following the "mainstream" course or pursuing medicine, but having gone through a more critical thinking and examining process, the same solution might feel less like a confusing and dissatisfying retraction and more like a conscious and affirmative choice. With a better sense of clarity and ease of mind, Jiayi may feel more grounded moving forward with making future decisions and be ready to explore other options and improve her thinking/decision-making process itself.

In short, a rich learning opportunity for holistic growth may be gained through exploring the deeper cultural, philosophical, and moral issues embedded in important decision-makings as Jiayi had experienced. More questions than answers may be uncovered in this process; yet this inquiry may also lead one to live a fuller life in all three dimensions—cognitive, intrapersonal, and interpersonal.[122]

IV. THEORIZATION: RECONCEPTUALIZATING CRITICAL THINKING & ITS PEDAGOGY

1. Cross-cultural Context & Local Relevance

[122] Such a life may be called "examined life" by Socrates or a personhood with "a measure of authenticity—in becoming real persons and not human impersonators" (Noddings, 2006, p. 35).

The two challenging aspects of critical thinking for Jiayi were thinking independently and synthesizing different ideas and viewpoints into a coherent, overarching understanding, and both challenges may be rooted in her Chinese upbringing and cross-cultural background. For example, Jiayi mentioned in a member-check response, the challenge to think independently stemmed from a lack of prior experience and encouragement: "Months ago as I reflected my independent thinking skills and how I developed them through time, I felt that my parents seemed not to foster them substantially in my childhood." Such lack of encouragement for independent thinking appeared to be prevalent in the Chinese social and educational contexts, even though both the Chinese family dynamic and school options have become increasingly more diverse in the past few decades. Yet not having had much prior practice in making decisions and thinking independently on her own, an internal meaning-making structure may be insufficiently developed for navigating through uncertainties and for defending herself in face of potential ramifications. In fact, Jiayi was having experiences characteristic of an in-between[123] stage of development called "cross-roads," which includes feelings of conflicted loyalties to different values or principles and wishing for "a more integrated sense of self that can resolve her external differences in expectations and demands" (Boes, Baxter Magolda, & Buckley, 2010, p. 13). Her struggle with making sense of contending ideas and desire for synthesizing them through critical thinking can be seen as an expression of being in this in-between stage.

[123] "Cross-roads" is situated in between the initial stage of "following external formulas" (i.e., where one is deferential to external authorities and significantly influenced by what others say) and the later stage of "self-authorship" (e.g., where one recognizes one's own responsibility in interpreting experiences and making choices by using and trusting one's internal voice).

Similar interests in the cognitive dimension were also expressed by other transnational Chinese participants in the study, in their desires for critical thinking to be more integrative, inclusive, or “dialectical”—i.e., taking consideration of the opposite sides and creating something new through synthesizing the merits of each side. This advanced version of critical thinking echoed perhaps their personal experiences and dilemma as transnationals traversing different geopolitical/ cultural spaces and feeling the imperative for an integrated sense of the self or identity—i.e., one that cannot reject the new (what they learned abroad) nor abandon the old (where they came from). This reconstructed selfhood, therefore, has to be a creative synthesis of both worlds; and having a tool or kind of thinking that can facilitate this creative, reconstructive process would be just as imperative.

While it may seem that their cross-cultural background and experiences had propelled transnational Chinese students like Jiayi to desire or envision a form of critical thinking that is more sophisticated than typically required at the undergraduate level, a stronger or more inclusive form of critical thinking may be relevant for domestic students as well. What is described as “cross-cultural” matters at the international level may bare lots of similarities to what is considered as “multi-cultural,” “diversity and inclusion” issues at the domestic level in the U.S. The short of emphasis on strong counterargument, contextualized analysis, and synthesis of contending views may be both a product and a cause for the continued struggle in American higher education and society: to communicate and connect, to be more inclusive and equitable to its existing diversity of people, ideas, and interests. In other words, by fostering a more advanced critical thinking—i.e. more inclusive and dialectical rather than argumentative and self-assertive (though this earlier stage is necessary and foundational to the later inclusivity),

higher education may better benefit its students and their respective communities—domestic or international.

2. A Reconceptualized Critical Thinking with *and* for Greater Inclusivity

A reconceptualized critical thinking with and for greater inclusivity can be understood in three ways. First, as discussed in the last subsection of the discussions section (i.e., how critical thinking may be applied for personal decision-making), the domains in which critical thinking are taught to be applied in should be more diverse and inclusive. Such domains might include the personal, where many complex questions and decision-making emerge that are pertinent to students' cognitive development and their sense of wellbeing and belonging. Second, the dimensions in which critical thinking operates or is applied should include not only the cognitive dimension but also the intrapersonal and interpersonal dimensions. To practice critical thinking in three dimensions instead of one dimension would mean to think not only rationally and logically but also with consideration to one's internal voice (i.e., one's irreplaceable individuality) and social context (i.e., the inalienable others)—without which logical rationality would likely be a lost cause. Third, critical thinking for greater inclusivity entails practicing a higher form of it, as suggested in the previous paragraph, one that is inclusive of different or contending views and that attempts to synthesize them to the extent that one is capable of.

Substantially more research and theorization may be needed to generate a fuller reconceptualization of a more inclusive critical thinking. I have provided a preliminary discussion of how it might work in the first two ways in the discussion section (i.e. how critical thinking can be applied for decision-making in the personal domain). The following sketches how this

advanced form of critical thinking may operate in the third way—i.e., synthesizing contending views—that bears similarities to what has been described in the discussion section.

Synthesizing different or contending ideas may not always be possible, but the attempt is worthwhile (as evidenced in the work of philosophers like Plato, Kant, and Dewey). Situating this within the context of higher education, this practice can proceed by considering the following components: (1) The context and considered validity of either side, (2) one's own personal contexts and considerations and, (3) any further information necessary for evaluating either side. Applying these considerations to Jiayi's case, it would entail for her to consider the following: (i) The historical and cultural contexts in which individualistic/independent and collective/deferential thinking, for example, that dominate the U.S. and China respectively come from; (ii) the importance of her own context as a transnational Chinese student in the global era, her close association with family members, and her desire for independence and individual uniqueness; (iii) greater exploration of her interests and diversity of professions that would provide her with sufficient security and necessary self-satisfaction.

Jiayi might have considered these components in her decisional dilemma in some variation. Yet a more thorough or "serious" thinking process for problem-solving in the personal domain, utilizing both external and internal sources of knowledge, might enable her to synthesize and make choices among contending ideas that may remain otherwise conflicting and impossible. Having considered the contexts in which different ideas or norms come from across different cultural spaces, she might gain a more contextualized understanding of what is purported as common sense or the right way, which may enable her to feel freer to reconstruct her own knowledge and praxis. It is also possible that through this more rigorous process, Jiayi

may still arrive at the same choice as she did; however, having examined thoroughly, she might be more self-assured and grounded with what she has chosen. That is, having connected it to her inner core and thus made it meaningful for herself, she might feel more affirmational toward her inner voice, less directed/conflicted by others' opinions, and more at ease with making independent choices of her own.

In short, the reconceptualized critical thinking would be more inclusive of the other and the self, so that each is irreplaceable and important in stimulating holistic or three-dimensional growth of the individual and, by extension, in transforming the society constituted by individuals better connected to others and to themselves.

3. Correlating Pedagogical Suggestions

Pedagogical suggestions have been mentioned throughout the previous findings and discussion sections, and they can be summarized in the following:

First, provide sufficient (and sometimes differentiated) background information and knowledge without which critical thinking cannot fully operate. For transnational Chinese students, background knowledge might entail cultural knowledge that is specific to the U.S. or new to them (e.g. prevalent racial and privatization issues); for domestic students or students in general, background knowledge could be the history of a discipline, its methodological approach, and epistemological assumptions.

Second, for students to demonstrate more inclusive analyses or critical thinking in writing, instructors can make a more consistent requirement for including counterarguments and contextualized analyses as part of college writing, without which logical argumentation may lead

to a valid but narrow perspective rather than a useful and comprehensive understanding. Instructors can also guide students on how to work with contending arguments and perspectives by applying a strategy called "pedagogical neutrality" (Noddings, 2012, p. 104) that aims to present different sides of an issue and the context or criteria by which each perspective can be defended. When these pedagogical efforts are built into the curriculum and classroom activities, students would be more encouraged and equipped to face intellectual uncertainties and moral challenges to arise more often in a space of diversity; they might even discover the benefit of wrestling with contending ideas and choices by which they can formulate a stronger synthesis or understanding individually on their own and collectively as a class.

Third, to broaden issues or topics of learning, whenever appropriate, beyond the traditional confine of the academic domain, recognizing students' lived experiences and personal dilemma could be microcosms where larger issues and forces intersect. For education to touch upon the personal domain is not to perform or replace psychoanalysis or therapy, but to inspire students to make connections to larger issues and to also gain self-knowledge that may affect the knowledge they will later produce/transmit, the persons they will be, the kinds of relationships they will have, as well as functions they may perform in society.

These pedagogical suggestions may be interconnected and starting with any one may lead to the utilization and development of others. For example, an education that recognizes the importance of holistic development and usefulness of critical thinking across domains may venture to take prevalent cultural ideas or ideologies—those affecting our everyday life—as intellectually stimulating and personally beneficial opportunities for exploration and learning. It

would understand that for students coming from a different culture and history, what may be obvious to instructors in American higher education may in fact be difficult for these students to grasp without sufficient guidance, support, and tools. Something seemingly common-sensical as "follow your interest/passion," for example, may be challenging for students whose interests and identities differ from the norm, and the simple praxis of "follow[ing] your passion" or "be who you are" may upend dreams and relationships back home. It would, therefore, advocate diversity not only at the level of statistics but actively utilize it by creating dynamic discussions, paying attention to the particular challenges and resources brought forth by different student populations, and taking greater interest in knowledge sharing and explanation in light of its student diverse epistemic position and cultural background.

As the origin of simple mottos prevalent in a given culture may be traced back to its religious, philosophical, and sociopolitical roots, to explain the everyday life may in fact be an invitation to delve deeper into learning in the academic domain. In other words, discussions of the seemingly mundane and commonsensical may not only facilitate international/transnational students' engagement and better utilize their cross-cultural perspectives but also stimulate domestic students and instructors to reflect their cultural and knowledge assumptions and create a more equitable and dynamic learning process for all participants. Moreover, establishing greater connections with the past and with one another may also help students to see knowledge as contextualized and constructed, improve their epistemological awareness and sophistication, and feel freer to recreate and reconstruct better knowledge claims in both the academic and personal domains.

Admittedly, to include topics of everyday life and issues of the personal domain as a part of or as an addition to academic discourse may be unusual for formal education. Yet "education" itself can be perceived as a concept and a professional field that is historically situated, malleable, and definable in both a narrow and a broad sense. As evidenced in Jiayi's case, however education may be defined, there are also cultural, moral and cognitive components within students' experiences and challenges that can be facilitated through academic learning or education, particular one that claims to foster critical thinking.

Although a single case thus far, Jiayi's learning experience and perspective shed some light on the state of American higher education—namely, it may not be sufficiently preparing students to think critically for complex problems and to meet the social and psychological challenges of late modernity. At the same time, this cross-cultural case also demonstrates that critical thinking can be better applied to clarify complex problems across domains and function as a tool for self-knowledge necessary for problem-solving. In short, to fully benefit students and by extension the society, education needs to do more of what it claims and to translate its professed ideals into concrete and timely curriculum and pedagogy. Expanding or reconceptualizing critical thinking—in terms of its scope of concern, domains of inquiry, and level of inclusivity—would be one step moving toward in this direction.

Chapter 5b. In-depth Case Analysis (II): Claire

A SELF-MOTIVATED "PARACHUTE"

I. INTRODUCTION

Having considered Jiayi's story, let's now consider another case—Claire. While the two cases share some obvious similarities, they demonstrate significant differences, particularly pertaining to the major themes explored in this dissertation: critical thinking and selfhood. Both Jiayi and Claire are female STEM students who kept successful academic records (i.e., high GPAs), demonstrated open-minded curiosity, and remained close to their respective families. Yet they differed substantially in terms of how they associated with their parents, how they pursued (or not) new ideas that sparked their initial curiosity, and how they resolved dilemmas that arose from contending forces across cultures and ideologies. In addition, while Jiayi represents a more typical case of transnational Chinese students who completes high school in China and comes to the U.S. for college, Claire is one of the "parachutes"—students who start education abroad in high school or even earlier.

According to a 2016 poll cited by a New York Times article titled "The Parachute Generation," the average age of Chinese students in the U.S. "has dropped to 16 from 18 in 2014" (Larmer, 2017), suggesting that Chinese parents have been sending their children at an increasingly earlier age in order to gain a competitive edge for the American college admissions. But as Claire's story will soon reveal, she is a rather different kind of parachute. Arguably, her greatest difference, particularly in contrast to students like Jiayi, is perhaps manifested in the sense of self or agency she exercised. And that internal strength seemed to have shaped the

particular experience and perspective Claire had about critical thinking, turning it into a process by which she gained further growth as a person and a tool that helped her to navigate the challenging demands of a transnational life.

II. FINDINGS

1. Accidentally Stereotypical

Recounting her high school years in the U.S., Claire vividly recalled the following experience—one of the many unexpected encounters that led to as much jarring dissonance as rapid growth in the new environment:

> It just happened that I fit into their Asian stereotypes, and they would tell you, like my host mom often said me: 'you should enjoy life, you shouldn't study all the time.' But I knew this [studying hard] is what I needed, this is what I wanted to do, not because I am an Asian or I am a nerd.

It is perhaps not without irony that the genuine desire to study hard was, in fact, new to Claire—after taking a huge leap of faith to come to the States on her own.

As a "parachute," Claire began her educational journey in the U.S. as a high school sophomore. The decision was made in haste, after she became increasingly dissatisfied with and resistant to the Chinese education system, in spite of her apparent success as a student. Even in recollection years later, Claire recounted her middle school experience with some anguish in her voice:

> I didn't enjoy the educational environment in China, I was feeling indignant about the fact that all people cared was grades, which made the learning process extremely stressful…. To ensure that we achieve more academically, there was a lot of pressure, and the school had us follow a strict boarding system: We had to wake up around 6 or 7 every morning and wouldn't be able to return to our dorms till 8 or 9 in the evening. It was very exhausting for me, because I typically finished assignments much earlier than other students but I still wasn't allowed to go back to the dorm to rest. In any case, it was

> puberty compounded by rebelliousness and a lack of sleep, so eventually I developed strong resistance to this kind of schooling.

After gaining a spot at one of the most competitive high schools in the city, Claire knew she wouldn't be able to tolerate another three years of the same grueling cycle. Young and confident in her own abilities, Claire dropped out of the elite school, feeling doubtful that the prescribed path of academic competition was her only option to succeed in life. When her "willful" decision for transferring to an academically non-competitive high school did not pan out either,[124] a relative suggested sending her abroad for high school—an alternative that has been gaining more traction in China, though not as popular as studying abroad for college.

This adventurous possibility sparked her interest, especially as favorable views and stereotypes of American culture and education have infiltrated into the mainstream Chinese culture:

> There were all kinds of talks about the U.S. being good in this or that way: Its education being superb, with a lighter academic workload, and a strong emphasis on whole-person development. I was curious and thought since the Chinese education environment wasn't a good fit for me, perhaps this other option might be better, so I decided to go abroad.

Claire made her own choice to study abroad at a young age, which distinguished her from the majority of parachute students whose oversea ventures were typically decided by their parents. Also unlike a typical parachute, Claire did not come from an affluent background; she came from a modest urban Chinese household for whom private school tuition abroad meant a "huge

[124] According to Claire, she was at the non-competitive high school briefly and soon realized that even though she would feel more relaxed there, it would not be the right fit for her academically. She also did not consider the options to attend an international high school or program in China, because they were comparably expansive (if not more so) as studying abroad. Claire also believed that these educational alternatives in China would still operate under a general competitive Chinese model (albeit slightly more relaxed than traditional Chinese high schools), and that was something she wanted to avoid.

expense." Luckily, as a singleton, however, her parents and grandparents were able to pull together their savings, including selling an apartment, to invest into her education. Claire felt deeply grateful to her family's love and unconditional financial support in spite of their limited means and initial apprehension. She also became eager to ensure the best possible outcome from this high-stake choice:

> I worked really hard throughout [the time abroad] and to this day, because it's my decision; I get to be responsible, I get to experience growing up….That's what really changed my life, because before that, I had good grades, but I didn't work hard; I was really lazy—frequently skipping tutorials and falling asleep in classes.

Once abroad, Claire's new diligence was further spurred by another kind of unanticipated necessity: Cultural shock and a lack of relevant background knowledge. Arranged by a studying abroad agency in China, Claire enrolled at a private Christian high school in a southern state in the U.S. without knowledge of the kind of education she was about to receive. Firmly grounded on Christian faith, the school generally prohibited courses that contradicted its literal interpretation of the Bible, such as advanced biology for teaching the theory of evolution. Having limited STEM offerings at the school, Claire had to fulfill her college application AP requirements by taking advanced History and English—both of which were challenging for her in terms of language requirements and content knowledge. These challenges, in fact, emerged early in her experience at the school. Clair described the intense anxiety and confusion she felt during her first year in the following:

> We had to take Introduction to Biblical Studies, but I didn't even know what the Bible was and my English was poor, so I was often lost in classes. I was guessing a lot at what the instructors might be saying…and felt exhausted every day from classes due to language barriers.

To regain her "sense of control," she studied all the time in high school. Her effort, however, was frequently teased by domestic students and misunderstood by American adults, who thought she was simply "studying too hard" and "not having a life." Although largely unfazed by these "uncomfortable" experiences or "nonsense" (Clair had a penchant for using pity expressions),[125] Claire felt disenchanted by what she perceived as "anti-intellectualism" and racial stereotyping in American schools and local life before college.

Yet when commenting on her initial decision to venture abroad as a whole, Claire said unwaveringly that she had no regrets: "I think it's been a good investment. My goal for studying abroad wasn't necessarily to find a better job. I wanted to come because it would mean something in my life—an experience I wouldn't have had, if I had stayed in China." By "experience," Claire meant the exposure to the greater diversity of people and their different ways of life that greatly enriched and broadened her mind. We will return to the topic of "experience" later in the discussion section to further explore its conjunction with critical thinking and self-development.

2. A CONSTANTLY EVOLVING SELFHOOD

By nature curious and inquisitive, Claire was immediately struck, for example, by the prominence of religion in her high school education (i.e., in ways that other parachute students in her school did not respond to). Religion was a dimension of life she had never been exposed to before, and she responded to this new experience of dissonance with active inquiry:

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[125] Claire has a habit of using strong terms or judgment, corroborate with her strong character what sometimes came across as over-confidence in what she perceived or believed; at the same time, however, her opinions/judgments were constantly evolving and changing (even within the span of the two interviews).

> It was the first time I encountered something that I've never seen before; it was odd, at least in the beginning. China is still more or less atheist, so as a young person, it was hard to believe why so many people [here] should believe that there is a God. So of course I wanted to know why and listen to their reasons; I was just very curious.

Claire's curiosity was fueled by an openness to engage with this new belief system not only intellectually but also personally. She viewed Christianity as a possible worldview that was simply unknown to her before and that could become her own if she would be sufficiently convinced:

> I was completely open to the possibility of becoming a Christian, should I be persuaded; so I was very open-minded to what they had to say. Unfortunately, no one could convince me in the three years I was there, and gradually I realized that they were not as open-minded as me. I considered seriously what they said and thought they had a point, though there were still things that didn't make sense to me and I would discuss with them further. Yet no matter what I said, they've already decided that the Bible is the truth, so they wouldn't consider seriously what you have to say nor the possibility that they may not become Christians one day. It wasn't like how people say in China that Americans are all open-minded.

Unconvinced in the end by the attitude and arguments that had been advanced in defense of the religious doctrines, Claire said that she appreciated, nevertheless, the opportunity to gain a basic understanding of Christianity and to reflect upon her "own belief system and perspective on life."

Claire mentioned that in moments when she was not completely sure of the trustworthiness of new ideas—numerous as they were when she was first steeped into the new culture, she typically defaulted to what she had already known or imbibed from her Chinese upbringing: "Whenever I feel I don't know, and I am embarrassed to admit, I tend to stick to the old one." Yet delving a bit deeper, such default moments were quite temporary. That is, in spite of the begrudging moments she had experienced as an ethnic minority and sojourner in the U.S., Claire was still interested in exploring new possibilities and was open to appreciating aspects that she found valuable. As she said: "On matters of this kind, I am very open; if another [alternative

worldview] is to emerge, I would be very open to listen to that different point of view." In fact, by being open-minded, her original beliefs underwent frequent and significant changes in ways that was not always anticipated or obvious to herself.

For example, by the time we met in her junior year in college, Claire had begun to relax a bit about studying—a substantial shift from her previous attitude toward academic success. Contrasting herself with the more recently arrived Chinese students, she observed:

> Among those (students) who have gone through high school in China, some are overly competitive…they are very tense about grades…I knew it because I was more or less the same before I came to the States. Over the years, [however,] I came to realize that while it's nice to have a high GPA, there's something more important.

When I asked what this "more important" thing might be, Claire responded with a self-deprecating laughter: "It's about not being so harsh on yourself, especially academically—to be so worried about every course, whether one is losing a point here or there, getting an A or A-. I've learned recently to let that go."[126]

Even though Claire's actual achievement—a near perfect GPA (3.99)—was the likely context that supported her more relaxed attitude, the new development probably would not have emerged without her reflection of her old habits and mindset that contrasted sometimes sharply from new ideas and experiences she had encountered abroad. This is evidenced in a member-check response, where Claire explained four "advanced ideals or praxis" she had appreciated about the U.S. One of the ideals that might have contributed to her changed attitude, especially with regard to grades, was perhaps the notion of individual "happiness":

> They [Americans] value happiness in life more. Chinese people often associate their value of life with power and money, which they believe would also bring them happiness.

[126] Claire's elaboration here is more about the actual change rather than its underlying motivation as might be suggested by her phrase "something more important."

> However, in the process of pursuing power and money they often become very depressed, stressed, or instead feel unvalued and unhappy.[127]

Although not mentioned explicitly by Claire as the specific cause for the changes within herself (as it is typically difficult to pinpoint the exact causes for changes that evolved over time), this new ideal or value-orientation drew a sharp contrast to what she had witnessed or experienced as a Chinese youth. As she recalled the unhappy times at school in China, "the concept of reducing [academic] stress simply does not exist in the Chinese context. There is simply no other way, if you want to reach to the top." The repeated motto that one should "enjoy life" from her American host mom was received by Claire with some frustration when she first arrived in the U.S., because it did not come from understanding her situation and struggle as a daring youth in a foreign culture. Yet gradually, different or perhaps better manifestations of this contrasting attitude toward life—more internally than externally defined, more joy than accomplishment oriented, and more content than condition[128] of happiness focused— seemed to have left a deep impression on her. And the substantial differences or dissonances emerged from the cross-cultural experience seemed to have stimulated Claire to reconsider her existing habits and values, and in time, to determine those—old or new—that she would embrace as her own.

One change that Claire did explicitly attribute to the cultural influence abroad was her becoming more assertive in public (even though she had always been assertive in the more intimate, familial setting). The change grew out of a salient interpersonal challenge she

[127] Direct quotation from Claire

[128] By "conditions of happiness," as described earlier in the introductory section to the case studies, I mean material conditions such as credentials and skills that may lead to financial prosperity and social prestige; it contrasts with "content or substance of happiness" that refers to something (e.g. a voluntary interest) that makes one feel content and that may or may not guarantee financial or social security.

encountered in the U.S., and the "continuous process" of change was still solidifying during the time we met for the interviews. In the first interview, for example, Claire asserted that "at the level of cultural foundation," the Chinese and American worldviews were "totally different and contradictory: Whereas Chinese believe in modesty and hardworking ethics, Americans emphasize packaging oneself—get out there to show off oneself." Even though Claire presented the different ways of being in these two cultures as almost insurmountable (with word choices suggesting that the former may be morally superior than the latter), by the second interview half a year later, she recounted the following change within herself:

> I used to hold back a lot, and was shy and not assertive about a lot of things. For example, when I needed ask teachers for recommendation letters, I was very worried about bothering them at that time [in high school]. But now I can knock on professors' doors repeatedly without feeling ashamed and ask for what I need and be upfront about it. This change must have started around the first year in college and gradually evolved to the current stage.

Arguably, the concept of "self-promotion" mentioned in the first interview carries a pejorative connotation that may not be attributed to "self-assertion;" however, in a broad sense, both concepts are about getting what one needs or desires (albeit in different ways—noticeably extravagant in the former case or understandably reasonable in the latter). Either way, this change toward becoming more assertive about what she needs from others was not easy for Claire, for she had to deal with an "intense fear for the possibility of being rejected and asking too much of others"[129]—a concern prevalently expressed by other Chinese participants in this study as well.

[129] This fear for asking too much and being rejected by others is perhaps a manifestation of a culture that place lots of emphasis on social propriety, expecting members to demonstrate implicitly understood or shared social norms. Such social expectations are summarized in the overarching concept of "saving face," meaning one should not act in a way that cause embarrassment for oneself or others. It is arguably an "other-oriented" culture in the sense that one needs to conduct oneself in light of what others may think, judge, or feel. Within such cultural context, one may

Claire recalled a vivid incident that led to the change for her to overcome her habitual inhibition and fear for making requests, especially to authority:

> Once that professor [non-American] said to me: 'You are living in America [now], you should behave American'—meaning, if you don't nag them sometimes, they won't give you what you need, so you should continue nagging them.' From that moment, I somehow came to realize…that [I] should be more upfront, take more initiatives, not be too worried about this or that; I need to take actions, speak out for myself.

It was also a big relief for Claire that when she tried the new way of being and interacting with others for the first time, "others didn't seem to resist as much" as she had anticipated. This experience gave her the needed confidence to "be more assertive and try it again the second and third times," until she became comfortable with the praxis of self-assertion and it became a second-nature to her.

In addition, when she went back to China later for a summer internship, Claire also felt more comfortable building rapport with authority figures in ways that she would have felt "too shy and resisted from doing before." As she reflected happily on the breakthrough, "If I had always stayed in China, I would probably have learned it [networking] in some other ways; however, this lesson is mutually relevant—what I learned in the U.S. can be applied in China as well." Cultivating relationships with authority from the position of self-confidence and assertiveness may be qualitatively different from doing so out of deference and fear of authority.

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be more reserved or take more caution about what one requests or refuses, in fear of embarrassing or irritating others with requests they would not like to grant, for rejection is likely to be perceived as an embarrassment (for the requester) and not being considerate or merciful (on the part of the requestee).

By contrast, it may be argued that in American/Western culture, the general assumption is that "it doesn't hurt to ask," assuming that everyone more or less does what he/she think is right and we cannot assume others share our assumptions or values. It is a more self or individual-oriented culture, in the sense that one's wish or decision (the requester or requestee) should be respected and therefore, it is both OK to ask/make a request and reject a request. In such socio-cultural context, one is both less worried or offended with making/getting requests or receiving/delivering rejections, even though some may go out of their ways to demonstrate considerations for others.

Yet putting this subtle but substantial difference aside for a moment, Claire's reflection seemed to suggest a growing realization that beyond the apparent cross-cultural contrasts are some common threads across cultures and basic needs within herself that can or should be better affirmed.

Exemplified above are two cases where Claire changed in ways she had not anticipated and even resisted initially, i.e., embracing a less "tense" or narrowly defined attitude toward academic success and adopting a more "shamelessly" assertive approach to what she needs. In addition, not only specific attitudes changed for Claire, but also her ability to recognize how much she was actually capable of changing evolved as well.

For example, when we first met for interviews, Claire claimed with apparent certainty that as a college junior, she has considered almost all of the major issues in life there were to think through and most of changes have already taken place for her. She politely suggested that I might benefit more by interviewing lower-division students for the research. By contrast, in the second interview, she mentioned with delight not only changes within herself but a new or clearer recognition that this self-evolving process was likely to continue and that it was something she would be looking forward to:

> I've always thought that it [self-development or change] has been completed; perhaps most of it—roughly 60%--has been done and the probability of that changing would be small. However, there is still the rest that can be reshaped. Because in this period, since we met last time, I would reflect on myself, including what I've written about and to myself. I would compare them over time and realize that there's been a noticeable difference in every six months or so.

Claire's more reflective stance in delivering the above quote and in other parts of the later interviews seemed to suggest a humbling experience it was for her to recognize there was still much to uncover about herself. In comparison to her frequent expressions of certainty in the

first interview, Claire demonstrated in the later interviews a more open and moderate way of perceiving things, making a conscious effort to leave room for potential modifications within her perception and understanding.

In short, the above accounts demonstrate that through her strong propensity to reason and reflect, Claire's selfhood evolved constantly, while staying relatively grounded in spite of strong emotions and dissonances she experienced across two different geopolitical and cultural spaces. In the following two subsections, I will continue to highlight the "antagonistic pulls" (as aptly phrased by Dewey) that created the context within which Claire further defined her individual identity and values. I will also explore her strong sense of self[130] that appeared to undergird her ability to reason and navigate through the powerful forces that were pulling her in contending ways. Details in these subsections provide the backdrop for the second half of the findings on Claire's experience and perspective of critical thinking.

3. JUGGLING "DIFFERENT EXTREMES"

Claire's inquisitiveness and independence took her far—to new experiences abroad that contributed to substantial changes and growth. At the same time, the drastic change of environment and the contending pulls (or "different extremes" in her expression) embedded in

[130] While "strong sense of self" appears to be a popular concept among psychologists or psychotherapists (something I was not aware of until I showed this draft to a reader with training in psychology), I was using the phrase more casually, to indicate that in comparison to the previous case Jiayi, Claire's sense of self is stronger. By Claire's "strong sense of self," I meant the following attributes she demonstrated: independence, affirmative attitude toward her ideas/needs, and ability or will to act on her own ideas and resist external pressure.

the cross-cultural journey also seemed to play an important role in stimulating her active mind to constantly apply itself in navigating the tensions and dissonances.

On a personal and experiential level, the “different extremes” manifested in a pressing way, directly impacting her choice and relationships. For example, at the time of our first interview, the topic of dating and premarital sex was on Claire’s mind a lot. This is because by the normative code she had imbibed, sex was a taboo topic; yet this view contrasted sharply with the open approach she witnessed abroad:

> Chinese are very traditional, including my parents, [who often told me] you can’t be like this or that. Yet once I’m abroad…matters regarding sex stand on a different extreme, and the two extremes just clashed. But once I consider it thoroughly, I can still find a balance point….I follow principles that I believe are right. Even though there are all kinds of constraints and pressures from my parents, I won’t do something just because of [pressures] or not being able to handle them.

By “balance point,” Claire referred not so much to a compromised position or a middle way (i.e. giving up some of what one believes in order to appease or align oneself with others) as to an examined principle that she came to believe after thorough thinking. And once this core principle or action-directing position became clear and firm in her mind, Claire seemed to have then “balanced” it with a more moderate approach in action. That is, modified behavior corresponding to a given context and its constraints, such as her parents’ conservative views and her reciprocal commitment to them.

As the following quote illustrates, Claire did not compromise deferentially or adjust her action without a good fight. She endeavored patiently and strategically to communicate and stay connected with her parents, while maintaining the position she came to uphold:

> I still experience this kind of pressure: Whenever I broach this subject with my mom, she still gave this response like what you said is just deplorable. But I will take it slow, ease her into it, gradually explaining to her that there are people who think in this way,

> whether you find it reasonable or not, and that I want to let you know this perspective… the process has been quite difficult. In a way, if she hadn't asserted such pressure, it's very likely that I would have gone farther along the extreme here [in the U.S.].

In other words, the "balance point" for Claire consisted of two folds or stages. First, at the intrapersonal level or for oneself, it meant finding one's point of view or grounded position in the midst of contending ideas and uncertainty. Second, at the interpersonal level or in relation with important others, it meant registering both sides' reasoning and emotions and finding ways to work with her needs along with her parents'. In the balancing act or process, a lot of difficult communications between them brought some modifications to the way she would have conducted herself had she felt more free to act on her own. And to the extent possible—i.e., without sacrificing her chosen principle, Claire tried hard to maintain the familial bond that has been vitally important to her identity and well-being.

While Claire may be firm with her parents in defending her choices, she was well-aware of her internal fluctuations and made conscious efforts to ensure that her newly examined beliefs and chosen position would not be submerged by powerful old habits:

> I think a person in her youth would be trained by the society to think in a certain way, but if later on, one takes the initiative to think for oneself, one would develop her own thinking system. The two systems would fight constantly, whenever you encounter an issue, and your immediate reaction would be the one you had been trained, [i.e.,] the traditional response or perspective. But if at that moment, you consciously remind yourself of the things or the way of thinking you have come to believe—and I am still having this [struggle]. For example, when I see a girl having casual affairs, my immediate response would be 'she is a slut'—that is my first response, socially trained. And then a conscious idea would emerge [to correct old ideas], saying 'No, it's not like that. Think about what you've thought through before, [i.e.,] she is only making her own life choice'…. The battle is still on constantly to this day, but I believe that one day, my conscious ideas will become my [new] unconscious thoughts.

To be committed to solidifying the new and replacing the old mentality, Claire was consciously rewiring her subconscious (or "unconscious" in her expression) thinking and thus forging a clearer

sense of what she valued and how she wanted to live. In other words, through navigating the cross-cultural extremes and arriving at her own position, Claire was in fact gaining an examined selfhood upon which she was building a connected but independent life.

In contrast to the extremes that had an immediate and direct impact on Claire's personal life, other extremes observed by her about China and the U.S. were more broadly relevant. These more macro-level cross-cultural contrasts, nevertheless, also contributed to the overall condition in which she considered and solidified her core values and beliefs. For example, one of the four "advanced" American ideals she explained in a follow-up response was social justice, or what she called "diversity and equality":

> They [Americans] value diversity and equality. This difference is more important since those who ask for equality or diversity include those who won't actually benefit from the programs (i.e. you have men fighting for gender equality and equal pay, and you have white men fighting for the black or [L]atinos…) In China a lot of people often stand in the line that's the most beneficial to them. Hence to me, I think most of them do not possess any core values...[131]

Conveyed in Claire's description of this American ideal (albeit imperfectly practiced) was, arguably, respect and empathy for individuals—particularly those who suffered from injustice or disadvantages—that had propelled people to go beyond their own interests and bond with others to demand for a more just society for all. This empathetic attitude toward the other was manifested at a more personal level in Claire's own development, as she repeatedly mentioned it throughout our encounters.

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[131] Direct quote from Claire. It may be worth noting that this description from Claire was written in a follow-up correspondence, during the coronavirus pandemic (i.e., a couple of years after the formal interviews) that had posed direct health threats to her family in China. Perhaps anxious for her family's safety, adding to her growing concern for China's future prospect under an increasingly authoritarian regime—a topic that grew prominence in our later interviews, the cross-cultural comparisons she drew in her response were understandably stark. Its discernably anguished tone contrasted the hopeful optimism she expressed in the first interview about China and the prospect of going back after completing her studies abroad.

For instance, being able to emphathize was mentioned even in the initial online questionnaire where she described the notable change(s) she had experienced abroad:

> I became more caring and understanding [of] other students and their circumstances. The reason is that I realize that, unlike those in China who came from similar background and life experiences, here students are extremely diverse-from single parents to the elderly, thus I also become more patience if others come to me to ask questions about stuff in class.

Interestingly, in spite of her initial affirmation of this positive change within herself, her self-evaluation of this development in the interviews were more complex and conflicted.

On the one hand, a similar affirmation was also expressed by Claire in a later informal interview[132] where she named empathy as one of her core values that had always been central to her: "To be genuine, to be caring, and to have empathy for others." On the other hand, in our first interview, while often emphasizing her identity as Chinese (e.g. her conscious effort in maintaining/using the Chinese language, whenever she could), Claire differentiated herself from other parachutes who were perhaps more Americanized in the following way:

> They are more fun-loving and happier, at least on the surface level. I have a relatively big shortcoming, which is I'm rather selfish. That is, I am indifferent to others that I don't care [about, i.e., not close to]. But in my interactions with them [other parachutes], they are better than me in this respect, they really care about others around them, even those they are not close to. By contrast, I only care about those I am close to. They are more loving, and are in general more selfless in comparison to other Chinese students.

Yet despite the apparent contrast drawn here, Claire acknowledged later in the second interview that when she really thought about her close friends abroad, most of them were in fact fellow parachutes. There was a recognition, evidenced in her reflection and the surprising tone of her voice, that she was perhaps more similar to them in attitude and value-orientation than she was

[132] The informal interview took place a year and a half after the initial questionnaire, or a year after the interviews.

previously aware. And in terms of "care" and "empathy" specifically, she has, without perhaps realizing, become more like them than her former self.

The apparent inconsistency[133] in Claire's self-evaluation and her oscillating perception of where she stood on the scale stretching from "selfish"/ "indifferent" to "selfless"/ "caring" may also reflect a changing or bettering self that was still evolving and in flux. In one moment or situation, the self may seem to have progressed forward, while at a different time or circumstance, it may appear to have remained the same when old habits lurk back and dominate. Claire's own reflections demonstrate her awareness of the fluctuating state of this internal development before it becomes solidified and stable:

> I think it's the more open and just environment here [in the U.S.] that helped to solidify my ideas. But as for these ideas, I have always had an innate voice, that somehow felt very strongly this is not right or that is wrong.

Her explanation here not only echoes the interpretation of her oscillating self-perception and selfhood as part of the developmental or solidifying process within, but also suggests the possibility that in changing and evolving into an apparently new selfhood, Claire might, in fact, be self-actualizing who she truly was or what Dewey called every person's "irreplaceable individuality."

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[133] To put more elaborately, the inconsistency in Claire's self-evaluation may also be understood as another manifestation of her often unassuming and sometimes self-deprecating way of presenting herself and her accomplishments. It is possible that as she evolved further along in the direction of "empathy" or "care" for others, progress she has made earlier may not appear substantial to her at a later stage of maturity. Variedly, her oscillating perception of where she stood on the scale stretching from "selfish"/ "indifferent" to "selfless"/ "caring" may also reflect a changing or bettering self that was still in flux. That is, in one moment or situation, the self may seem to have progressed forward, while at a different time or circumstance, it may appear to have remained the same as its old habits dominate.

4. EXERCISING AGENCY[134]

Just as the tension created by the "different extremes" seemed to have engendered thought-provoking dissonance and spurred rapid growth within Claire, it also led to unexpected changes in the relationship that had been most important to her: the bond with her parents. Even though Claire tried her best to retain this close bond (as will be further explored in this subsection), the relationship became inevitably distant as she evolved and the differences between them grew wider. Claire's ability to weather the rift with her parents and contend with the forces within herself—or what Dewey (1916) aptly described as those "antagonistic pulls" that put one in "danger of being split into a being having different standards of judgements and emotion for different occasions" (p. 26)—demonstrates an uncommon inner strength to be explored further in this subsection. We shall also see in the later subsections that this inner strength was vital to her ability not only to exercise necessary agency (i.e., to believe in herself and to act upon her beliefs) for charting her own life, but also to apply critical thinking effectively across various domains.

The familial relationship occupied a central place in Claire's heart (as it is typically among the Chinese), to the extent that she saw it as an integral part of her selfhood. Evidenced in the quote below is her account of how the parent-child relationship is typically perceived in China:

> Even though children and parents are two separate entities, these two entities are interconnected in many ways in the Chinese cultural/educational ideals. Therefore, I will communicate with my parents on matters important in my life, even if they may not understand [my perspective] right away. I hope they can understand me, because I love them, and they also love me. I hope we can reach consensus on core issues, so that they can provide me with understanding and support….I believe most parents are reasonable.

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[134] "Agency" rather than "independence" or "autonomy" is used in here and elsewhere in the dissertation to highlight the particular kind of strength/power to think and act on one's own, especially in spite of pressures from interpersonal pressures or dominant social practices.

> They may not accept things right away, being too traditional, but give it enough patience, love will eventually conquer the deeply ingrained traditional values.

Given the centrality of this relationship, it may be no surprise that the growing difference and distance would be quite distressing for Claire. Her explanation suggests that loving for her meant feeling/staying "interconnected"—which also necessitated, as she understood quite maturely, that she would need to help her parents to keep up with the important changes in her emerging, cross-cultural adulthood. Therefore, she was not only active but also persistent in communicating with her parents and in keeping them close in her evolving world. For the experience of growing strain and drift in this relationship could mean a potential split or fragmentation within herself— a looming possibility to be avoided.

Indeed, in describing her parents, Claire's emotion often swelled up in ways that rarely manifested with any other topics throughout the interviews. Although a generally big-hearted person with a propensity to speak using vivid and at times satirical expressions—often along with a plenty of laughter to deflect the potency of her critical remarks, Claire choked up on several occasions when she talked about her relationship with her parents. Her voice became strained, for example, when she recounted the largely unsuccessful attempts at keeping her parents close to her mentally and emotionally, as she kept venturing away from home:

> It's possible that they might feel hurt sometimes. But I am not worried about that, for [we] are extremely close. I wouldn't discuss with them values [or topics] that they haven't thought about, such as meaning of life….What can be discussed are things that they have some thoughts on but that their ideas were too unreasonable; there, I would, *without hesitation* [her emphatic tone], try to convince them otherwise. Even if I haven't convinced them, I should still keep trying….I was left in tears sometimes, when I couldn't reason with them [her voice started to shake], couldn't move them to understanding.

Elsewhere in the interview, in a slightly dismissive tone, Claire explained her parents as people who were not open to reasoning and thus to changing their minds, obstinately standing by what they had already come to believe:

> Though they couldn't [object] rationally—sensing that what I was saying might be right, they also couldn't admit to themselves emotionally what is right; so I haven't been that successful with them. People like my parents, they have never thought deeply about life for themselves; they don't have a fundamental value system [examined using their own thinking]. Therefore, they follow what's conventional, swing easily by what's in trend at the time.

Yet at the same time, she had tender feelings for her parents and their welfare, knowing all too well the emotional bond between them and sensing her own "fear of being alone," should she drift further apart from them—the only people, as she felt, who "have unconditional love for you." Therefore, in spite of her critique of their limitations, Claire was saddened by the ineluctable distance widening between them:

> The only time I've felt sad was when I couldn't feel connected with those I'm closest to—that makes me sad…I think for us not to be able to connect in understanding has impacted our sense of intimacy; as a consequence, I may not share with them [further] my deepest thoughts, if they cannot understand.

In spite of her understanding of her parents and their mutual commitment for one another, there was a gradual shift in her realization that she might have to move forward without her ideal vision of the familial relationship where they would remain an intimate part of her world. Though she was resolved to accept this new reality, the decision seemed to have some ramifications on her perception of herself, at least temporarily. As was evident in our last (or informal) interview, she said in a hardened, matter-of-fact tone the following about her character:

> In any case, I have been thinking about different things every year. This year, it eventually boiled down to the self. In terms of this kind of relationship, this kind of bond with your parents: *Is it really a kind of bond? Are you bond[ed] to them; are you free from them?* As a Chinese student, I've always felt that even though maybe I cannot connect with

> them—intellectually or as friends, they are still my parents, we still have this bond that I have to maintain….But then eventually I came to this conclusion that as individuals we are free. I will try my best to bond with you, but if it didn't turn out well, then I have to, you know, I have the rest of my life to go, I have to decide for myself. If so, I thought, *what kind of person am I?* I am essentially a very selfish person, because most of my decisions are based on myself, you know, not because I want to take care of my parents.

Interestingly, despite the harsh self-evaluation, Claire said that she felt no guilt about herself—i.e., as a selfish person. Yet, her voice faltered, as if struggling to contain her emotion while leaning determinedly on her reasoning of the situation:

> Uhm, (pause), I feel, I feel free [her voice choked a bit], I have no [dry laugh], I have no, I don't feel guilty at all. I think [stressed pronunciation] I've tried as much as I could. If in the end, if it doesn't work out, it just doesn't work out.

In other words, in spite of being aware of the pejorative connotation undergirding the label "selfish" (i.e., especially in the collective Chinese cultural context), Claire chose to accept herself and press forward with her own vision of how she wanted to live her life.

Granted, in this particular incident, Claire's ability to withstand the social/moral pressure associated with the normative code of filial obligation—i.e. the expectation requiring one to "fulfill duty no matter what"—seemed to have been supported by her astute observation that the difficult choice that she had to face between the pursuit of her own interests and the anticipated obligation to her parents was not hers alone but was a condition of her time and belonged to an entire generation, as she said insightfully: "There's a lot of inconsistency left for us to figure out; that's our job to figure it out." Yet, it was not the first time Claire withstood extreme pressures and insisted upon her own choice after due consideration. As she said, for example, the following in reflection of her first significant choice on her own when deciding to go abroad:

> Looking back at myself, I have always been the type who wanted to make my own decision and take the responsibility [for it]…. And I think being young and perhaps foolishly daring, I felt no matter what happens, I can take the consequences. Maybe after five years I'd regret, but at that moment, I believed I could take the good or bad consequences.

In short, Claire has always had a strong sense of innate agency. It grew relatively uninhibited throughout her youth, as she said "I have always explored all kinds of things on my own since young" without typical parental interference. This agency was later reinforced by her own commitment to not only think through issues or experiences but also to take action based upon her examined thoughts and beliefs. By reinforcement in actions, moreover, she was able to solidify changes or new habits and mentality she wanted to embrace, thus effectively evolved and grew along with experiences and adventures that she might have initially unanticipated or underprepared for. Admittedly, the cross-cultural clashes she experienced were sometimes agonizing, potentially splitting her sense of loyalty or selfhood while pulling her family further apart. However, none of these challenging experiences seemed to have mired Claire in a state of debilitating dilemma, where she would be unable to move forward with confidence or feeling torn between choices for a long period of time. Therefore, Claire's strong sense of the self—as she "always listening to her inner voice" and exercise of her agency—arguably played a pivotal role in her ability to juggle through "different extremes" and thrive while remaining grounded. As we shall see in the following subsections, the strength of her agency or selfhood also played a key role in her concept and application of critical thinking.

5. An Atypical Definition Of Critical Thinking

Given Claire's exercise of agency in making decisions and in solidifying new habits and perspectives, it may not be surprising that her perspective on critical thinking would also be

distinctively her own. In fact, her perception of this popular educational concept was substantially different, and arguably more advanced, than how it has been typically conceived—as primarily logical thinking, simple evaluative thinking, and/or multi-perspectival thinking that argues for a particular position of one's own. As will be demonstrated in the following three subsections respectively, Claire's own definition of critical thinking highlights its nature as a process, its intimate connection to one's belief system, and even its dynamic interaction with the non-rational "inner voice." Given the ways in which Claire perceived and practiced critical thinking, a clearer picture comes to the fore on how critical thinking may be connected to the self and self-development.

(1) Critical thinking as a process that leads to action upon one's belief system or selfhood

Critical of conventional definitions of critical thinking, Claire asserted in a moment of angst that they were mere clichés:

> I think "thinking outside of the box" or whatever—I kind of hate that—they are all borrowed terms. You grow up hearing people say "think of outside of box," "think pros and cons," and you kind of make it your definition of critical thinking; but that's actually just borrowed terms. I wouldn't actually [adopt them so easily], [for they are] just abstract—not defined terms—that you borrow from somewhere else.[135]

After the strong statement, Claire explained her own understanding of critical thinking, i.e., as a comprehensive process where conventional conceptualizations, such as "think outside of box," constitute partial steps or aspects of this thinking process:

> Being able to think critically is not just one step; what they are referring to is just the first step, you know. If you see something, first you want to seek something that's different [i.e. identify differences or the other side]. The second step, after you see outside of the box, then you have to evaluate—that's the middle step of the process....So you can't just

[135] Verbatim quote from Claire in English, with very few or minor phrases in Chinese.

> go outside [as] here he says something interesting and there she says something interesting and ends there. There's no point; it's pointless to just think outside of the box and stop there. You have to go further. You see something and you have to evaluate it, right, using whatever, either your belief or you seek some resources to help you to evaluate it. And in the end, you have to come to conclusion—do I reject it, do I accept it, or I am not sure if I can reach the conclusion, so I just leave it there. That makes the process whole.[136]

This quote demonstrates that Claire might have understood "going outside of the box"[137] as seeing things from multiple perspectives other than one's own and believed that such popular understanding is insufficient in capturing what critical thinking is or can be. From her perspective, critical thinking as a process must also entail applying criteria or beliefs of one's own to evaluate various perspectives or claims and to generate one's examined position on a given issue or controversy. In other words, salient in Claire's understanding of critical thinking is a recognition for the indispensable role of beliefs or one's belief system in the thinking process, and this highlighted dimension is further articulated in the following quote.

Speaking with increasing rapidity as she continued unpacking her train of thought on how critical thinking worked in her experience, Claire discussed the extended stage where thinking paved the way for actions that could either lead to a significant intrapersonal change or propel a candid self-reflection:

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[136] Verbatim quote from Claire in English, with very few or minor phrases in Chinese.

[137] There may be different interpretations to the phrase "thinking outside of the box," just as different definitions abound for the concept "critical thinking." Some may, as a reader of an early draft of this dissertation pointed out, understand "thinking outside of the box" as "escaping the shared framework or 'received knowledge' about something, and coming up with an idea that surprises everybody in your setting. Simply comparing different arguments would probably not lead to it. It's about creativity rather than critical thinking." It was not uncommon among participants in this dissertation, however, to associate this phrase as a (partial) definition for "critical thinking." Perhaps, it can be argued that the line between critical thinking and creative thinking may in fact be somewhat blurry or overlapping—an important subtopic that, unfortunately, this dissertation does not have the space to explore much further. In short, it may be noted that at least for some, "thinking outside of box" suggests thinking outside of one's perspectives—if not to the extent of the shared framework within which people operate collectively as a group, and that constitutes at least a part or an aspect of being able to think critically.

> And if you decide you want to accept something that was contradicting to the beliefs you had before, will you overthrow the old [beliefs] and change your actions—all of which are part of, maybe, the action after critical thinking. If you find the new thing is convincing [but] contradicting to what you did before and you decided not to take the action against [how] you've been behaving before, what does that entail? *Are you an illogical person, right? Should you be consistent?*[138]

Claire's account suggests that the consequences of critical thinking as such could entail some heavy lifting toward self-development or self-knowledge in either case: action moving forward in which old habits would be replaced with the new through practice, or a hard process of introspection that would propel one to come to term with who one actually is. And both of these possibilities—resulting from critical thinking—seemed to have occurred in Claire's experiences as she ventured into new places, ideas, and controversies with an open-minded curiosity and a sensible awareness of her social ties and constraints.

Conveyed in this quotation is the prominent role of beliefs (i.e., what one believes, values, or opines) in Claire's conceptualization of critical thinking as a process—one that begins with awareness of differences and results in self-reflective or self-transformative actions. According to Claire, this role is manifested in two ways or at two levels:

> I think there are two levels [of how belief operates in critical thinking]: the first is that you should have a system of examin[ed] beliefs [for] what you should do; and the second, the deeper one, is you should sometime examine your own system of [existing] beliefs.[139]

In other words, in the critical thinking process, one's belief system first takes on an active role by enabling one to evaluate different perspectives or claims that would eventually lead to an informed position or conclusion. Second, in a later stage, one's existing beliefs also play a passive role where, through the thinking process, they would be examined, retained, and/or replaced

[138] Verbatim quote from Claire in English, with very few or minor phrases in Chinese.
[139] Verbatim quote from Claire in English, with very few or minor phrases in Chinese.

with new ones that are better warranted. Arguably, therefore, the relationship between belief and critical thinking can be mutually informative: just as belief is indispensable in the thinking process and that invariably shapes the thinking outcome, critical thinking can also serve as a self-corrective or improvement mechanism for one's belief system. Moreover, as one's belief system constitutes an essential part of the self, critical thinking as such would arguably lead to either a change within oneself (i.e. self-development) or understanding about oneself (i.e. self-knowledge).

(2) Priority of belief vs. logic in critical thinking

Claire's emphasis on the indispensable role of belief in critical thinking and the potentially transformative effect of critical thinking on one's existing beliefs undergirds her particular conceptualization of critical thinking—one that echoes the Socratic or original vision of critical thinking for self-knowledge. This does not mean that logic has no importance in Claire's notion of critical thinking. In fact, having taken a few courses on logic from the philosophy department, Claire believed that logic or the learning of logic is "useful for every single field," without which people would often make mistakes in their thinking processes. This means that while logical thinking constitutes a necessary aspect of critical thinking, it is by no means sufficient. Given the centrality of belief in her conception of critical thinking, it also means logic would work in conjunction with belief, as she said: "You should think logically most of the time. But in terms of the context, your logic should be based on your, some of your fundamental beliefs built throughout your life." That is, while belief functions as both an initial source (one's existing belief) and an end goal (examined beliefs) of the thinking process, logic utilizes one's belief

system or beliefs as necessary propositions and improve them by uncovering inconsistencies (either internally within one's belief system, interpersonally in light of the other, and/or with reference to one's social or physical reality). In other words, although exercising a lot of operational power in the critical thinking process and corrective potential on one's belief system, logic cannot function without nor completely override what one believes, opines, or wills.

(3) Subsection summary

In short, Claire's conception of critical thinking manifests itself as a process that starts by seeing different perspectives, that goes through an intermediary step of logical evaluation based on one's beliefs or principles as evaluative criteria, and that ends with taking actions that bring forth potentially transformative change or a reflection of one's existing beliefs and selfhood. This conception of critical thinking highlights both the logic and the belief dimensions. Arguably, this balance between logic and belief in her conception and practice of critical thinking had a lot to do with the way she acquired critical thinking largely on her own; moreover, this balanced approach to critical thinking provided Claire with both the cognitive flexibility to be herself and ability to change her thinking as she navigated the contending pulls and conflicting ideas in her cross-cultural experiences.

6. A Largely Self-initiated Critical Thinking Learning Process[140]

[140] As mentioned in the research questions or the introductory chapter, *experience of critical thinking* includes learning and applying critical thinking, and *perception of critical thinking* includes definition, evaluation based on one's experience, e.g. transferability across the domains and disciplines, universality vs. cultural specificity of critical thinking.

(1) Early informal development

A strong sense of agency can also be seen in the way Claire learned critical thinking, i.e., largely on her own initiative. When we first met, a couple of quick assertions Claire made startled me with regard to her learning process of critical thinking. On the one hand, she claimed having "pick[ed] up" or "learned most of the applying process and method [of critical thinking] on my own" at a substantially earlier age—around elementary school or before—than what was commonly reported by most participants. On the other hand, Claire was also forthright with her puzzlement about what constituted critical thinking and the teaching of it. Delving a bit deeper in the interviews, it became clearer that her confusion stemmed from a lack of explicit instruction on this topic in formal education and, perhaps more importantly, from the naturalness by which she developed this way of thinking on her own:

> I was curious the whole time while filling out the online [questionnaire]: what is exactly the so-called critical thinking training? Isn't it just something as you grow up, you learn how to walk, how to draw, and [how to] think for yourself? Does it have to be taught through a class or two? It's a [learning] process you would initiate for yourself, through the courses you take and events and people you encounter in life.

True to her assertion about critical thinking as a natural-occurring learning process, Claire recounted numerous occasions throughout the interviews that supported her claim.

For example, tracing back as far as her early childhood before formal schooling, she recalled the following incident that sparked her wonder and curiosity—the kind that would later develop into an intense reflection of her beliefs and of new ideas:

> There was a moment, or many [such] moments, when you were young, and as a result of the encounter, you started to wonder, consider why, or maybe ask your parents or others around. For example, when I was in nursery school, I started to wonder about certain things. I was very young at the time, and there was a boy in the class, who was outgoing, and we would often talk. I would tell him some facts, and he would tell me that I was great and hugged me. I would then start to wonder: *Why is he like this and my personality*

> *is like that—I would never hug another person or expressively praise others on their intelligence; but he would, so is it something should I do too?* I remember having this thought for a brief moment; I would keep it [the thought or wonder], but I didn't know why. I don't know what I thought about it later, just thinking about different things all the time.

This early, self-initiated thinking process continued to "build up gradually," explained Claire, through many moments or encounters like this, "and every time it happened, I would experience a mini practice or an intensive practice."

This exercise of agency and independence in thinking on her own continued to grow, in part due to her parents' lack of education and ability to help her:

> Later when I started elementary school, perhaps the earlier time I began to realize that I don't need to listen to my parents but have to find knowledge [answer] on my own was in first or second grade. Ever since nursery school, I started having this idea that I want to be the best,[141] I thought I have to study hard. There were a few occasions I couldn't solve the problems and asked my parents; just by their look, I knew they wouldn't be able to solve them [the problems]. So ever since then, I haven't asked them about anything relating to academic, because I knew it would be a waste of time. Perhaps that was the juncture when I thought: If this isn't reliable, perhaps other things [they tell me] are not reliable either, so on and so forth, like a domino effect.

In other words, her parents' inability to guide her academically also lent itself to an equal lack of interference from them on what she should or should not like or do. And that, on a more positive note, explained Claire, helped her critical thinking to develop:

> I think there were many causes leading to this [critical thinking on her own], but what came to mind right now is the familial environment—the relationship between parents and children. In the Chinese context, most students who have good grades also have parents who are compulsive, telling you—ever since you're young—to do this and not to do that; therefore, you'd get used to it. For me, my parents left me alone; they didn't have many thoughts or unusual ideas, but they didn't micromanage me either. Ever since I was in elementary school, I was in charge of my study and was never controlled by them. If there were books I wanted to read, while other parents might say that you shouldn't

[141] Another encounter explained by Claire where she was "very impressed" by a classmate's apparent intelligence and articulation to an observational question, i.e. the difference between chicken and ducks. Small as it was, this incident nevertheless inspired Claire to be a better or "the best" student.

> read this kind of books but should read the other kind, my father just bought me whatever I wanted to read.

Claire knew well that though her parents were not able to help her excel at school, she was fortunate in that her parents "really cared and loved" her and largely left her alone with an "unusual amount of personal space" to pursue her own interests and thoughts.

As she grew older, the competitive yet rigid educational system in China further spurred Claire, who was already apt in thinking independently, to reflect critically and feel discontent with the confining pathway in which Chinese youth like herself were allowed to succeed:

> I developed critical thinking early on. I was dissatisfied in middle school, though I was a very good student]. Out of all these [good students who were expected to obey and follow a prescribed pathway], there was me asking: *'Really, is this really true; does this path necessarily lead to this end?'* But there were all kinds of people telling you that it is so. I didn't agree, I had my own ideas and way of thinking. After considering it over for a period of time, I felt my ideas were not compatible with the general direction dictated by others, so I didn't want to go along. I wasn't satisfied, for students in my circle were all good students, but they were all like not having a mind of their own, following wherever direction their parents tell them to go.

In retrospect, Claire admitted that "of course, all of these [earlier] perceptions would change later," as if reflecting on her propensity for strong (at times binary) statements and for self-reflection and correction over time. It was, however, through this iterative process of making assertions and modifying them later through experience and examination that Claire seemed to have formulated her own understanding of critical thinking. That is, before formal exposure to this educational concept or "before hear[ing] this phrase" through SAT testing—as was the case for most participants, Claire had already understood critical thinking from her practices as a self-

initiated or natural capacity for "being able to evaluate, critique, and be aware of one's current state and situation, and make some response/give back thoughts accordingly."[142]

(2) Later formal exposure

Having practiced and developed critical thinking largely on her own, Claire was rather skeptical of the extent to which critical thinking can be or needs to be fostered through formal education, especially through training for tests like the SAT:

> This is how I understand critical thinking [as something that is as necessary and natural as walking], so I can't understand what critical thinking [training] is. I don't think you can become a critical thinker suddenly just by taking an SAT course on critical thinking…. I don't think that's necessarily critical thinking [in SAT's Critical Reading test], because you can receive a good score by becoming skilled at the testing strategies.

At the same time, Claire also recognized a few occasions where critical thinking was effectively fostered in formal education. A consistently mentioned example was an AP English course she took in high school, where students were explicitly encouraged to think beyond their typical interpretative frameworks:

> Most of the time, [critical thinking was] naturally picked up. And the little [that was learned from taking courses], was sometimes in that AP English course the teacher would say to us, 'it seems that when you all look at something, your answers are pretty uniform, standard; what else could it be?' Then the teacher would have us read an essay by someone else with a very unique and insightful interpretation. When I read that, I thought to myself, 'wow, he [or she] might be asking us to think outside of the box; so ever since then, I would try to come up with something new and support it. But most of the time, I wasn't taught [to think like this] in the social sciences or the humanities.

While formal education as such stimulated Claire to think differently or beyond her original position, such occasions were sparse in comparison to the kind she experienced

[142] Verbatim quote from Claire in English, from her initial online questionnaire response.

informally outside of the classroom, where she felt “constantly bombarded with ideas that were different from my own.” As demonstrated in the following quote, the cross-cultural dissonances were intense for her, as religious doctrines taught at her high school in the U.S. clashed with her atheist upbringing in China:

> It [critical thinking development] was also due to my own initiative. As I thought frequently about my religious beliefs, different worldview and ideas, I would often ask and discuss with them [people at the religious school and community] and then compare their beliefs with what I had imbibed on my own.

Out of her natural curiosity and confidence, however, Claire took new ideas seriously and equally as different possibilities for her to understand and examine:

> I was able to do so because it somehow felt natural. That is, you’ve always believed in idea A ever since you were a little, and then you entered the world B where everyone tells you B is a different thing. You don’t know whether it’s good or bad, right or wrong, but you feel that since it’s different, so let me think it over…. It’s like eating a bread then another to find out which one tastes better. So I naturally thought about it and made the choice for myself. It’s also because I realized that many beliefs I had, such as whether god existed or not, isn’t because I had thought about this matter deeply, but because that’s the way it has been ever since I was little. But since I’ve come abroad and got to know another perspective, I thought well, maybe it’s time to think about whether the other point of view is valid or not. That was my primary motivation. In such an environment, where almost everything they said was different, I was thinking and comparing every day: What I believe is A, what they’re saying is B; if B can win over A, then I need to accept B.

Although Claire did not adopt the new belief system or option B as a whole, her thinking and values did evolve over time (as we may recall from earlier findings), veering toward at least some ideas from system B. In other words, the clash of worldviews in the informal spaces or what educational psychologists would call “cognitive dissonance” stimulated Claire to examine her original positions, effectively leaving room for new ideas and possibilities to emerge.

Since college, Claire noticed a dwindling in her usage of critical thinking—i.e., the type that she had been using extensively in high school and developing since an early age :

> I think I received 80-90% of the so-called critical thinking training in high school. It's because I haven't received much essay training as a [college STEM] student, as most of the stuff is quantitative. Although you could argue that there's also a lot of critical thinking, they are two different types of critical thinking.[143]

Several factors seemed to have contributed to the purported decrease in critical thinking. For one thing, Claire had received a systematic training in high school (e.g. through AP English) that was applicable to the kind of thinking required at the college level. In addition, her academic focus as a STEM major utilizes a different kind of critical thinking or intensive thinking that, as we shall explore in a later subsection, Claire preferred to call "technical" rather than "critical." Moreover, as she had been thinking constantly in high school and even prior, there were fewer issues to think through, as she said in our first meeting as a junior, "I've thought about most of the issues there are to think about." Furthermore, according to Claire, in a liberal college environment where people were more cosmopolitan and liberal, "there are far less people who constantly tell you things that are that different." In other words, there were less acute differences or dissonances[144] to be experienced that would have required or stimulated her to think intensely or critically. Lastly, as we shall see also in the critique of higher education subsection, Claire felt that there was a lack of active engagement on the part of the college instructors to push students to explore deeply different perspectives and thus think critically.

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[143] Remaining quote: "Most of critical thinking as you mentioned [i.e., logical argumentation, warranted evidence, thesis statement, etc.] happened in high school. This was in part because I took two AP English courses in high school, with lots of reading, textual analysis, and writing. It was a very systematic training."

[144] It's not that there's no dissonance in college, for there was, e.g. dating situation; but somehow though the clashes may also be great, they are more familiar to her—to think outside of her own framework or in light of a different one. She seems to have understood that it is not just about deciding upon the comparative merits of two contending worldviews on issues big or small but also understanding her own voice, belief, or preference.

(3) Subsection summary

In short, it may be argued that Claire's way of acquiring critical thinking on her own, before being exposed to it through formal educational means, shaped her particular definition and insight about critical thinking—one that places an atypical emphasis on belief, selfhood, and action—that is largely missing in the dominant conception. As we shall see in the next subsections, this largely self-initiated acquisition process also influenced the way she applied critical thinking in the personal domain and critique of the way critical thinking has been fostered in the academic domain.

7. Application Of Critical Thinking In Everyday Life

In the previous subsections, we explored the ways in which Claire defined and acquired critical thinking, where in both cases a strong presence of the self—in the form of agency or a belief system—came to the fore. Namely, her critical thinking learning process had been initiated largely on her own, and her definition saliently highlights the indispensable belief component at the start *and* the end of the critical thinking process. Likewise, in applying critical thinking, Claire found most usage in her everyday life where complex decision-making both necessitated applicable beliefs (along with warranted information or knowledge) and was used to potentially revise existing beliefs (which by extension reshape one's actions and sense of self) for better experiences in the future. The following subsection explores a few additional characteristics pertaining to Claire's application of critical thinking in the varied contexts of everyday life as a transnational Chinese student.

(1) Gathering varied perspectives and sources of knowledge

Let us explore for a moment how Claire thought through and made decisions for herself in general. According to Claire, she would first "somehow think it through on my own; if it makes sense, then I would take actions accordingly." For instance, when asked to provide an example of where she thought critically, the first instance Claire mentioned was a thought process used to deal with peer pressure: *"What are they doing and why are they doing so? Does what they do make sense, if not, should I comply and pretend I'm their friend or do what I believe is right?"* This way of processing issues critically in everyday life remained consistent in another example, a year later in the informal follow-up interview:

> As for the others, say, if I encounter some new style of living in the new culture I go to, [I would] ask people who're practicing this kind of thing: *Why do you do that, what kind of thing do you do*? Then I evaluate that behavior, and I think for myself: *Does it make sense; and if it's something I didn't do before, should I start doing it or stop doing the thing that I did before?* And then usually I'll usually make a decision.

Both examples demonstrate a critical thinking process that entailed the following stages and aspects: Inquiring into the *what* and *why* of the different other (i.e., their behaviors or/and ideas), evaluating the differences and their validity, reflecting back onto herself (i.e., existing habits or/and assumptions), and making informed decision based on what she knew of the other and herself.

Secondly, in cases where the stake was high, such as the decision on what and where to study for her future career, she actively consulted with and considered the opinions of those who were most likely help her:

> I would ask, for example on the choice of [graduate] school or academic matters, I would constantly consult with senior members [at the department], such as Ph.D. students or TAs, discussing whether my plan is feasible or a good idea. Yes, I will have conversations with them, asking for their suggestions. Their paths won't be exactly the same as mine,

> so I won't follow their suggestions completely, but I will incorporate parts that are relevant to me. I would also consult with professors, for they also know somethings well. Thirdly, I would discuss with friends, a few who can…in some sense inspire me.

Claire's description reveals that she made discerning choices about who was best positioned to consult her on a particular matter, and her sources of information or knowledge were fairly diverse, ranging from senior mentors to friends. Moreover, once pertinent advice was obtained, she also worked to discern which aspects of other's advice would be most relevant to her. This thoughtful step demonstrates an advanced epistemological awareness that each person's advice was based on his or her own background/context/goal and therefore she needed to incorporate it selectively with reference to her own situation.

Thirdly, when resources were few for subject matters that were difficult to discuss with anyone she knew, e.g. sex education, Claire sought information online:

> Chinese students don't typically discuss this kind of topic…. [To me,] it's like when you want to cook, you need to have some cooking skills and relevant knowledge—these are all natural things, [i.e.] having general knowledge and [appropriate] attitude and through communicating with others, you can make better choices. If it's just left on my own, it's very difficult to make [informed] decisions; I could only look it up online or listen to what Americans have to say.

This quote shows Claire's recognition of the need for having relevant knowledge for problem-solving—something, as mentioned earlier, that she knew since she was little. Rather than following tradition or deferring to the opinions of those she felt closest to, e.g. family members, Claire said that she "always explored all kinds of things on [her] own" with curiosity and independence, seeking knowledge (experiential or scientific) that can best address her questions.

Fourthly, in situations where she could not be certain and make a firm decision, due to the lack of information and the complex ethical nature of the issue, Claire gave herself more time and was able to live with the uncertainty or question in mind:

> For example sometimes I would come across an issue I cannot really decide; for instance, to be precise, you know, my attitude towards abortion: *Is it really killing babies? How should I react?* It's a gray area where I don't want to go through abortion, but I think, I feel I should support others who want to practice this right without abusing it. *If that's the case, do I decide that this is not killing, that this is OK? And when does it become not OK?* If that's the case, I kind of put it aside in my mind, and maybe in the future I will encounter some new thinking or new evidence to help me to decide that issue.

This quote corroborates the extent to which Claire often thought through questions in a careful manner, exhibiting both intellectual nuance and active involvement with larger issues that may be relevant to her. Arguably, being able to pause and live with the uncertainty of the question—i.e., without giving it up or ignoring it—is a manifestation of epistemic flexibility and sophistication. In the following pages, we shall see that this more advanced epistemic position may be aided, surprisingly, by a contestably non-rational component in Claire's critical thinking process as a whole: a reserved role for the heart.

(2) Reserving a place for the non-logical

Perhaps an unusual component in Claire's practice of critical thinking, prominently manifested in the personal domain, lies in not only the importance of belief but also in an even less cognitive-oriented component of her thinking process: the heart or inner voice. To be noted is the place of heart suggested in an earlier quote, where she said with a playful laughter, that one "should think logically most of the time." It becomes clearer in the following quote that in as much as Claire saw the importance of logic or logical training, she was well-aware of the limitation of logical thinking in everyday life situations, particularly when it came to matters of the heart:

> I have to admit that there were a few occasions where somehow you can't come up with a reason why you are doing something; it's basically your heart telling you to do

> something—that could be a case. Otherwise, I convince myself to do something by thinking about it. But there will be times when you can't really convince yourself [i.e. when the heart says to go elsewhere].[145]

Claire's description here demonstrates a certain epistemic flexibility (i.e., an advanced or nuanced form of epistemology that permits certain subjectivity) that seems to have served her well in being able to sustain a coherent sense of the self in midst of "different extremes" she experienced as a transnational Chinese student.

For example, making decisions amid contending ideologies or pulls can be theoretically complicated and difficult in practice; however, with a self-affirmative attitude toward one's preferences, decision-making as such can become easier in some cases. Even though Claire also experienced decisional dilemmas, in most cases she was able to find a "balance point" by considering "the pros and cons [of various options]" and choosing "whatever makes sense to me—[which] can vary among people." That is, while some may prioritize health, others might prefer the pursuit of a career or pleasure. These different preferences or heart's desire, according to Claire, influence the way we evaluate the pros and cons of various options, construct our individual "balance point," and make our personal choices. Recognizing the differences of others and feeling comfortable with her own (i.e., instead of judging them against the norms or what others say, as in the previous case of Jiayi), Claire was able to decide on many of her own positions and choices with relative ease.

In the case of high-stake decision-making on what to study, Claire also changed her major a few times. What the changes reveal is a process in which Claire became more convinced to follow her heart through the support and examples of the like-minded others. When she first

[145] Verbatim quote from Claire in English, with very few or minor phrases in Chinese.

entered college, Claire chose a practical major based on financial returns, for she understood that without her family's financial capability and support, however meager it was in comparison to other transnational Chinese students in her social group, she wouldn't have been able to pursue her dream of studying abroad and had the opportunity to develop her intellectual and personal capacity to the fullest:

> I think having money/financial security has always been important to me. Speaking from my own experience, I am here [in the U.S.], because in some sense I am very privileged in comparison to the majority of, say, my middle school friends. There's a saying among Chinese parents that children shouldn't fall behind from the earliest stage and that they need to be provided with enrichment programs of this or that kind. I discovered later that the starting line isn't drawn by the children themselves, but by their parents—what they are capable of financially…. Therefore, I feel if I become a parent, it's my responsibility to provide that edge for my kids; perhaps not the best, but enough to allow them to pursue what they want to do.

While Claire started off with a position aligned with "conventional wisdom" that prioritized greater conditions for happiness (e.g. financial security), there was a change in her priority or preference, i.e. belief or principle that guided her decision making on this matter: "After a period of thinking it over back and forth, I was somehow convinced that financial gain isn't the priority; it's foremost about doing a major that is challenging." The change was due to a combination of people she met and her thinking over the suggestions or thoughts they shared:

> He [a student she met]could in some sense inspire me, for in midst of his major, he suddenly found a branch of [the field] that really interested him and gave up on the idea of making lots of money, believing that this [new found intellectual interest] was what he liked the most. Even though I was not as interested in [pursuing the same theoretical field all the way to earn a doctoral degree]…I came to realize that people like me exist.
>
> Some professors and TAs told me, 'If you can easily get an A/A+ from these courses, you should take more advanced courses. If you continue to take courses where you're not utilizing your intellect, you [won't] gain anything.' [They] tried to convince me for a long time, for my mind was firmly set on making money then…. Eventually, I realized that they have a point, so I decided to give a try… and switched [major] for two reasons. First, I thought maybe I really should push myself a bit harder…to challenge myself. Second, I

> thought with [this new major], I could go on to pursue a MA or PhD degree, and even if I don't to find an academic position after, I can still find a pretty good job.

In other words, Claire's eventual decision was inspired by people who pursued paths for their intellectual values—how the subject matter may stimulate their internal, intellectual growth rather than external, social gains. Although it might have struck Claire that their suggestions were unusual in the beginning, she eventually reconsidered her old position and even came to identify herself with them or what they value as part of her true self, as when she said with a quiet sense of awe and affirmation, "I came to realize that people like me exist."

Positive interpersonal experiences through this decision-making process seemed to lend support for Claire to be more of herself, as someone who has consistently valued learning, experience, and growth more than competition, success, and financial rewards—however important or indispensable these practical qualities might be in her mind as well. By the time she was participating in this study as a college junior who had just made the final decision on her major, her conviction that the heart or one's unique individuality should take the priority role in important personal decision-making was evident in her online response to the question about how one should consider one's major in college: "Do whatever you love, under the restriction that you will be able to feed yourself without the parents' (or others') support. What you love doing is THE PRACTICAL [original capitalization by Claire]."

In the same online response, Claire also added that she came to the realization—i.e., that one should follow one's heart in making important personal decisions like what to major in—by "being in Chinese and American schools and educational systems for a really long time and by constantly contemplating on similar issues/dilemmas." While admitting that she would "still battle quite often inside," Claire also concluded that since "each time [she] came to the same

conclusion," she was "pretty certain" about her way of thinking on this decisional matter. It can be argued, therefore, that respectfully reserved place of the heart in her decision-making process is also supported by careful cognitive consideration or reflection as well. Similarly in the following quotation, it appears that Claire's relativist epistemic position has made it easier for her to listen to the heart or inner voice: "I have always thought that many things are relative and have always listened to my own inner voice; but others may also listen to their inner voices." It may be worth noting that for Claire, this epistemic perspective of seeing things not in terms of black or white, right or wrong, but as areas of "gray"—i.e., matters of perspective, degree, or context—was something that evolved over time:

> There were many times when I was young and thought something was absolutely wrong, they [parents] would tell me from their adult moral perspective—something that I come to share now that I've grown up—that this belonged to a 'gray area.' That is, this [something I thought was wrong] may not be right in some respects, but the problem is not too serious either; therefore, you need to accept it rather than trying to change it.

In other words, by being able to gradually think beyond a binary epistemic framework through familial/interpersonal influence and through reflection of her own experiences, Claire gained an ease to coexist with others who are different and to follow her heart's dictum or own differences in important decision-makings.

(3) Having consistency in principles yet flexibility in application

Although she has evolved to recognize the gray areas and see many things as relative, Claire also stated in various parts of our conversations that she has always had a strong moral sense or "innate voice that somehow feel very strongly this is not right or that's wrong." The change of position means that through life experiences and reflections she has come to question

some of her earlier moral assumptions. Yet at the same time, Claire felt that this deep-rooted sensibility still existed and was something that she “wanted to think more deeply on,” including the question of whether there is “absolutely right or absolutely wrong.” Earlier descriptions of Claire’s continual self-development and uncovering of core values (e.g. empathy) also demonstrate that she was becoming clearer about her own values and principles through reflection and examination. In other words, in spite of lack of clarity on the larger/absolute truth, she was increasingly committed to truths of her own and “do what I think is right” when it came to personal choices or actions.

While dedicated to following her own principles and instilling new habits or thoughts she has chosen to embrace, Claire also allowed selective flexibility, depending on the type of issues and people that were entailed. For instance, when asked whether she had experienced confusions when making choices of her own, Claire said:

> Yes, yes. But most of time, for things that I care most, I would find my own answers. There are times when it would seem that what you say sounds right, what others say makes good sense; for things I don’t really care, perhaps those that are not core issues, I just go with the flow—I do whatever seems natural at the time. There were also many instances where on the same issue at different times, I might act in one way at one time, but act in another way at another time. And that’s OK, because those things are not that important.

This quote demonstrates that for Claire, while on important matters she might insist thorough thinking and consistency in principle, on others that were less essential to her, she permitted certain flexibility and inconsistency within herself.

Similarly, the extent to which she expressed herself or her thinking also depended on the degree of importance she assigned to the people involved in the encounter:

> I realize that if it’s about people I’m close to, like my best friends or family members, when they say something that is relevant to what I have thought or understood and try

> to convince me otherwise, I would typically retort back and try to convince them about what's right [laugh]. However, if I go back to China and hear the same thing being said by someone not close to me, I would just listen. From my perspective in this case, I will act my own way, but I won't try to convince others what is the right way.

This way of selectively expressing oneself or avoiding it altogether in certain social contexts is echoed by other transnational Chinese participants in this study. It seems to be an appropriate response or self-preservation strategy necessitated by a socio-cultural environment that does not typically expect or support individuals to have their own ideas (by utilizing their reasonings) that invariably challenge established norms or rules. It can be argued that even though such selective expressions of the self or one's thinking may generate inconsistencies—varied actions depending on the context, consistency is still there. That is, depending on the importance of the issue or people involved, Claire asserted in actions different degree of consistency to her principles—which are clear to herself. She did consistently do "what I think is right" for her important decisions in the personal or intrapersonal domain; however, in situations that were of less importance or with interpersonal relationships that were not particularly significant, she allowed inconsistencies that did not impinge on her core principles/beliefs.

(4) Subsection summary

Recall the prominent role of belief in Claire's definition of critical thinking as a methodical rational process and the primary role of her own initiatives in the development of her critical thinking; her strong sense of self and agency are also manifested in the way she applied critical thinking in everyday life, as explored in the various parts of this subsection. An undergirding understanding of herself (e.g. needs or constraints) is present, for example, in the way she selected and gathered various sources of knowledge or suggestions from others most relevant

to a particular topic or decision she had to make. One such source that provides diversity of perspectives important for critical thinking was her inner voice or the heart—something that resides perhaps deeper within oneself than one's beliefs yet invariably shapes their development. Claire's ability to listen, include, and sometimes even prioritize her heart's dictum in an otherwise rational or critical thinking process demonstrates again her affirmative approach toward herself or her individuality; and that helps with solidifying self-knowledge essential for confidence and decision-making.

Moreover, inclusion of the heart in the application of critical thinking in everyday decision-making, big and small, also allows flexibility or necessary inconsistency that counterbalances the drive for consistency that rational or logical reasoning would otherwise relentlessly demand. In other words, in Claire's application of critical thinking in everyday life, the heart and the mind work together to give her the balance of rational consideration and inner-acceptance that help her to move forward in face of "different extremes" across cultures while continuing to improve and evolve as a transnational person.

The extensive involvement of the self (the heart and the beliefs) and the salient interpersonal dimension (the other as resource or constrain for one's thinking and decision-making) in Claire's application of critical thinking in the personal domain serve as a reference point by which we consider next her description of critical thinking in the academic domain.

8. Application and Evaluation of Critical Thinking in the Academic Domain

Claire's extensive experience with critical thinking in everyday life contrasts substantially from that in formal education: If critical thinking in the personal domain was apparent, frequent

and dynamic for Claire, in the academic domain it felt nebulous, sporadic, and highly technical. This subsection explores in greater detail her learning and application of critical thinking in school as well as her evaluation of the strengths and limitations of its teaching in higher education. Drawing upon Claire's perspective, the subsection also argues for higher education to take a more active and explicit approach in cultivating students' critical thinking.

(1) A technical version of critical thinking across academic disciplines[146]

A common characteristic that runs across Claire's impressions of critical thinking in the academic domain is logical technicality, even though the degree of such technicality varied across the disciplines. For example, when I asked Claire to describe how critical thinking might be manifested in the STEM fields, particularly mathematics—a field she knew well, she wondered softly to herself at first, "critical [thinking in] math? Let me think for a second; I know what you mean." After some pause, Claire explained the following:

> I think in math, the kind of critical thinking that is being used is highly technical; it's not the kind one experiences in life where things are full of uncertainties. Perhaps it's because in math, when you apply critical thinking to solve a problem, you might not know how to go about it, but if you think it through, you would end up using very technical skills to apply your critical thinking. For example, if this is not true, then something happens, then I have a contradiction—it's very logical.

For a moment at least, the idea of considering the mode of mathematical thinking as critical seemed to be a bit of a stretch in Claire's mind, as she thought hard on how to answer the

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[146] Claire used two different but related words—i.e., "technical" and "systematic"— to describe the kind of critical thinking learned from formal education. The perhaps rather subtle difference and connection between the two words are explained throughout this subsection on critical thinking in formal education. In brief summary, while Claire used "technical" to describe a more discipline-specific mode of thinking or process of analysis and knowledge production, she used "systematic" to describe a more general way of careful/structured thinking that is often used in academic writing, particularly in the non-STEM fields, and is perhaps more applicable for critical thinking in the personal domain as well.

question. In her response, if mathematical thinking can be categorized as a kind of critical thinking, it would be a "highly technical" and "very basic" kind that is highly dictated or equivalent to logic. In fact, as Claire described at one point, mathematical thinking may altogether constitute "a different kind of critical thinking." Her hesitation in equating mathematical thinking with critical thinking corroborate the unique emphasis in her own definition of critical thinking: the centrality of utilizing and examining one's belief system through the thinking process.

Related to this strong logical component in mathematical reasoning was, according to Claire, a lack of uncertainty (and thus diversity/multiplicity) in both its methodological approach and answer. For example, while there may be different ways to solving a mathematical problem, Claire asserted that they are essentially the same, for "the apparently different [proofs] use the same measure." This is because in mathematics, by contrast to other STEM disciplines and even more so to the social sciences and humanities, there is no perspective or methodological problem engendered from different theoretical frameworks that would split mathematicians into contending camps. As Claire explained: "Until we prove that it is actually A, we don't make conclusions. We may guess, but we don't fight about it." Moreover, in terms of final conclusion to a problem in mathematics, there is a right or wrong answer (or proof), reflecting its essential logic-orientation:

> If there is a statement and a mathematician uses the right way to solve it, meaning that his proof is correct, then almost 100% of mathematicians would agree with him, because that proof is a logical statement ABCDE, followed by the conclusion in the end. That [proof] would be absolutely right, no matter what. If another person comes along and says this is not right, then the only possibility would be that person is wrong. Right and wrong is very clear in mathematics.

Following Claire's description, if one is to draw a model of critical thinking based on mathematics—which in fact was the case in many ways as earlier proponents of the critical

thinking movement were primarily analytical philosophers or logicians with strong mathematical background—to think critically would invariably mean to think carefully, precisely, and logically. In other words, the clear and linear logical aspect of critical thinking may end up overshadowing, as apparent in the dominant conception, the more uncertain and potentially disruptive multiplicity that spurs intensive thinking in the first place.

By contrast, this latter aspect of what critical thinking should entail for Claire—i.e., "constantly swaying" uncertainties and multiplicities—seems to be more prominently displayed in other fields, particularly in the social sciences and humanities. According to Claire, the non-STEM fields typically embody varieties and uncertainties in terms of approaches, perspectives, and answers. For example, Claire recalled that on a few occasions in the non-STEM fields, instructors explicitly encouraged or helped students to think differently or "outside of the box." In addition, when discussing a text in the humanities, "different readers [would] have a different understanding of the main character…the author may be dead or may not know what he or she was talking about, [so] there's no right [or wrong] answer. However, such situation is not possible in math."

Yet in spite of differences between the STEM and the non-STEM fields with regard to epistemic certainty, Claire consistently used the word "technical" in describing critical thinking across the various academic disciplines. For example, she reflected the following about reading and analyzing texts that constituted much of in-class discussion and learning in the non-STEM fields, particularly the humanities: "the kind of skills you apply [in reading a text] is quite technical, like finding key words and key sentences and somehow analyze them." Claire was alluding to what is typically called "close reading"—a popular analytical strategy for reading texts

taught in the humanities. As a STEM student, Claire was aware that her exposure of critical thinking in higher education was limited to the majority of STEM courses she had taken; nevertheless, having fulfilled her general education (GE) requirements and taken a few extra social sciences and humanities courses, her impression of critical thinking in the non-STEM fields demonstrates, at the least, important feature(s) of its teaching and application at a general or lower-division college level. And the impression of a shared logical technicality as a key characteristic of critical thinking in the academic domain seemed to have also shaped Claire's view on the two other related central topics on critical thinking—its transferability across domains and the relationship between its informal and formal learning—that we will explore next.

(2) Transferability across the academic and personal domains

Claire's impression of critical thinking in academia as being highly technical seems to align with her perception of the "limited" extent to which critical thinking may be transferable across the domains, i.e., what she learned as critical thinking in school can be readily applied or adopted for critical thinking in everyday life. For instance, when comparing critical thinking in the two domains, Claire said the following:

> I feel what I have learned from school was limited; that is, analyzing an essay is quite different from everyday life problem-solving. This is because…in real life, it's more involved, it's not about picking words, synthesizing and concluding something. In everyday life, I draw upon past experiences when applying critical thinking; I really don't think I learned much from analyzing essays in school [for problem-solving in life].

Claire is not alone among the participants in this study for describing critical thinking in everyday life as being "more involved." This description suggests that critical thinking for problem-solving

in the personal domain entails more personal input in terms of facing decision-making with higher stakes (than constructing an argument or essay for grades), calling upon one's belief system for evaluation, interpreting and drawing upon one's past experiences, as well as deciding within more complex contexts constituted by interpersonal relationships and constraints. In light of the extensive involvement or array of factors to be considered in the thought process, a highly technical version of critical thinking espoused in formal education, as Claire experienced, may indeed provide limited applicability for the kind of critical thinking needed in the personal domain.

Granted, in a number of instances (i.e., in the first and third interviews) Claire also used a slightly different word to describe the kind of critical thinking learned from formal education—"systematic." By systematic thinking, Claire was referring to a series of logical steps or structural components for argumentation, particularly emphasized in academic writing of the non-STEM fields. In the following quote, Claire delineated some of these structural elements (e.g. emphasizing the role of clear definition, warranted evidence, and argumentative thesis) and how they provided a "roadmap" and helped her in the personal domain as well:

> For example, with the initial [self-initiated] critical thinking, when I encountered some event or idea, I [might] feel that it's not right or something—let's just say it's not right—but I can't justify it. I might feel it isn't good but as to why or where it isn't right—for in appearance the outcome might be good—would be very, more or less, ambiguous. But when I began to how to argue stuff…including using precise definition, evidence and conclusion—they helped me being able to justify my point of view. Like when I previously argued with my parents that pushing me to study intensively wasn't a good idea and I didn't like it: I could only say that I didn't like it, while they had many counterarguments. They would say: With good grades you can go to a good university, make lots of money, do things other kids can't do; but if you drop out, you would be working as a trash collector or something. These [reasons] sounded *very* [Claire's emphasis] convincing; whether they were true or not, they sounded right. But if we were to have this conversation again today, I would have plenty of things to say.

This quote demonstrates a rare instance for Claire in which critical thinking as a systematic thinking process was transferred and adopted from the academic to the personal domain to improve problem-solving in everyday life.

In addition, to the question of how learning from school might have shaped her understanding of the world, Claire's response in the following quotation also suggests some transferability of critical thinking from the academic to the personal domain. The example mentioned was about uncovering gender inequality through analyzing everyday usage:

> I think there are some instances, even though I haven't encountered this kind [of transferability] for a long time. I remember a long time ago when I was reading an essay in high school…where the author asserted that in the English usage, you kind of add a suffix to everything related to women; such as actor and actress, sometimes professor and female professor. The author questioned *how come* and argued something like such [sematic practice] actually subconsciously subjugated women as an inferior group, while acquiescing men as the default sex—that's the connotation. I found it really enlightening, [and] that indeed helped me later on to see [what] I haven't noticed it before. I used to think of 'actress,' 'actor' [were just names]—that's how you call them. But as I grow older, I realized that a woman with a Ph.D. degree Is typically called [in Chinese] 'female doctor,' and I found myself really against this type of practice. Then I would very consciously correct myself, since I have certainly been trained to think otherwise [i.e., in a conventional way]…

This rare instance for Claire exemplifies learning in school that directly challenged her on perceptions or practices that she had taken for granted, helping her to see beyond the surface level of things in everyday life and prompting her to change her understanding and future actions. Yet such an instance of transferability from the academic to the personal arguably resides at a thought content/perspective level rather than thinking skill/process level—i.e., the type of transferability typically referred to in the arguments for critical thinking proposed by its advocates.

Furthermore, as Claire consistently asserted throughout the interviews, more often transferability took place in the reverse order in her experience and observation of others, i.e., from the personal to the academic domain:

> I think it's [transferability across the domains] more or less from personal life to academic, because in everyday life, you use it [critical thinking] so much, so that when you actually write an essay—because I recently took a writing class—I tend to borrow the thinking from [everyday life]. And not just me, I realized that that's what most students are doing. When they want to justify some points about an article, they'd often refer something that happen in real life, and bring their idea into their argument.[147]

Perhaps given Claire's extensive practice of critical thinking in her life experiences, it is not surprising that she would observe more transferability happens from the personal to the academic domain. Yet what is being transferred, as suggested by this quotation and the one above, seems to be largely critical thinking content as well—i.e., thoughts or conclusions from critical thinking or reflection on everyday life as evidence or viewpoints for the construction of academic arguments or writing. Claire's descriptions of transferability of critical thinking across the domains—i.e., primarily from the personal to the academic domain *and* mostly in terms of content rather than skills—deviate from the kind of transferability of critical thinking skills from the academic to the personal domain often assumed by its educational proponents.

This emerging question on what is actually being transferred will continue to be explored in the discussion section and later chapters, to the extent possible within the scope of this dissertation. Meanwhile, it may be beneficial to explore next a number of related topics, e.g. Claire's critique or evaluation of the quality of higher education that purportedly fosters critical thinking and her perspective on the connection between critical thinking learned via formal and

[147] Almost verbatim quote in English from Claire.

informal pathways. Exploration from different angles or using different questions may help us to consider further the types of critical thinking that are being applied in different domains and could be transferred across, so that a potential incorporation of them together, as we shall see in Claire's following claims, may make the practice of critical thinking in each domain stronger.

(3) Evaluation of critical thinking pedagogy in higher education

While Claire had an overall positive experience in college, she felt the pedagogical quality was often weak or insufficient for cultivating deeper discussion that would utilize or lead to critical thinking. This critique was, in fact, directed at the humanities and social science courses where the kind of critical thinking she had in mind would most likely be fostered in formal educational settings:

> I have taken at least 5-6 humanities/social science courses [in college], including a [higher division] writing course. In the writing course, the teacher typically asked us to identify the use of symbolism by the author….and students would raise their hands [to respond]. Out of the ten [who spoke], two would simply state the obvious, meaning they didn't say anything but restatement of the question. Then five would say more or less like the surface level of the meaning of the symbolism. Maybe one or two will give you something deep. But we don't dig deeper, we don't follow that deeper place, [but] kind of move on to another topic. Therefore, I think it's [i.e. classroom pedagogy] not been useful in this respect [i.e., fostering critical thinking]. I think courses in the American higher education, at least these general education courses, are being taught just to fulfill requirements, so there's a lack of depth in the teaching. But I feel once we've reached the college level, learning should go deeper.[148]

Claire felt that part of the problem was an issue of intellectual relativism in the U.S.—something that became salient when compared cross-culturally with the Chinese context. Comparing the pivot toward intellectual relativism in American higher education with the

[148] Almost verbatim quote in English from Claire.

epistemic absolutism in China, Claire in her sweeping and dramatic way—which she seemed to exhibit a tendency for when compelled by a strong opinion or emotion—offered the following observation:

> In the U.S., they obviously encourage your individual voice, but then there's nothing after the individual voice. For example, when we read an essay, there would be thousands of interpretations; I guarantee you that 900 of them are wrong, but typically in English class, everyone just raise their hands, say whatever they say, and that's it. China and the U.S. are two extremes; in China, people believe that among a thousand of answers, there is only one correct answer; in the U.S., a thousand answers means eh--a thousand answers. I feel the U.S. is somehow stuck in the middle, not being able somehow to keep examining. I don't know why; maybe because they [e.g. teachers] don't want to offend the students, they don't restrain 'critical thinking' [giggling], but in any case.[149]

Yet there was a larger problem, according to Claire. This lack of rigor in classroom discussion was perhaps only one part, i.e. "a little problem under a huge problem"—which she identified as an insufficient attention toward pedagogy, curriculum, and teaching in higher education, as demonstrated in the following quotation:

> However the larger problem I was thinking of might be the lack of quality and rigor of the American education….This problem can be seen at [the university] in the following ways (including the discussion not deep enough point): a lot of classes are often too easy, especially some liberal arts classes; too much freedom with the curriculum cause students to liberally choose the most easy classes to take in order to get a high GPA;…the performance and teaching quality of professors and TAs are solely dependent on their own moralities. As far as I know, at least in [my] dept, there is 0 incentive for TA's or professors to be good ones (i.e. who spend a lot of time designing class and grading homework, and who actually care about the well-beings of students).[150]

Claire proposed a way to remedy the classroom situation by having students who exhibit deeper insights to speak more to expand on their thought process and by taking a slower pace with the reading material for more in-depth discussions:

[149] Almost verbatim quote in English from Claire.
[150] Verbatim written quote in English from Claire.

> But there would be one or two who saw things other did not; when you ask them *why do you read this from the text*, they would actually provide evidence to support it, pointing here and there in the text…then you realize that it actually makes sense. We should examine more; and if these students [who make guesses or restate the obvious] are given an equal amount of time to speak, isn't right that there would be no time to dig deeper with actual meaningful answers?.... Let those people [who offer deeper insights] speak more, so other students will see other ways of thinking instead of restating the text. I don't know how it's taught in China, because I think at least in the middle school, we started to read [analyze] a text word by word or sentence by sentence, think many things, and respond to many questions. I found here [how texts are read] is too fast, not deep enough.

Such interventions would require instructors to give more evaluative input into the different points raised by students, more guidance on thinking through diverse points of views, and perhaps more engaged interest and exploration of the differences that various pedagogical approaches can make on students' learning.

Building stronger incentive for more engaged pedagogy that would lead to the utilization and further development of critical thinking is necessary, because of the existing lack of clarity in the concept of critical thinking and its pedagogy in higher education and other factors that may already be undermining critical thinking development in college students. The following quotation from Claire's perspective, for example, demonstrates a lack of explicit teaching for students on what constitutes critical thinking in formal education, compounded with an arguable misuse of the term that undermines its integrity and full functioning:

> Because I don't know what constitutes as critical thinking training, the only thing I can think of is the so-called critical writing or reading, where you are given an essay and asked to analyze. As what I learned was rather technical skills for analyzing an essay, I really don't think that is the real critical thinking, that it is so in real life. I think critical thinking in real life and in academic are quite different, even though people call it 'critical thinking' [in both cases], or 'critical reading' or 'critical writing' in SAT or GRE; *do I think that's critical?* That's just about understanding the essay, understanding what's going on [voice rising with exasperation], and that's it! At least SAT's critical reading is like this to me. Perhaps the most 'critical' aspect [in the SAT] is about understanding the very subtle details, but I personally don't think that's critical.

In the first part of the quotation, Claire's critique of what she thought of as probable critical thinking training in academia was based largely on her experience of it before college and exposure from 5-6 social science and humanities courses in college. This focus of critical thinking from the non-STEM fields rather than the STEM fields of which she had in fact greater familiarity corroborates her doubts, as discussed earlier, about whether mathematical thinking or primarily logical thinking should be called critical thinking. It seems that in Claire's mind, as she had gathered from her self-initiated or informal learning, critical thinking should "usually deal with ideas that are inconsistent with one's own." Her expressed confusion in the beginning of the quotation about what constitutes critical thinking also seem to reflect the gap between the technically-oriented critical thinking fostered in academia and the belief or self-examining-oriented critical thinking she has been doing on her own.

In the second part of the quotation, Claire's reflection seems to shed light on a more serious issue related to the conceptual ambiguity and unwitting complacency/laxness in the formal teaching of critical thinking: the misuse or overuse of the term. As a popular concept in education and beyond, "critical thinking" in itself has gained sufficient prestige to function like a brand or buzz word that conveys authority and legitimacy. Yet when the term "critical thinking" is being overused to describe less rigorous and complex forms of cognitive activity, as Claire pointed out in the case of the SAT, can leave students with a skewed impression that there is not much to the practice of critical thinking or a deep skepticism about the so-called education that fosters critical thinking.

On a more positive note, higher education can take a more active role in the explicit exploration and teaching of critical thinking precisely because of the particular attributes that

formal education can potentially bring to students' overall development of critical thinking. As in Claire's case, while informal spaces in the personal domain seems to have spurred the most intensive thinking for her, she also asserted that the formal and informal learning together strengthened her overall critical thinking capability:

> I think it's a kind of intertwined, mutually enhancing relationship. If they are separated, the power of each wouldn't have been as strong. It's as if the kind of textual training [or technical critical thinking] can make the kind of self-initiated critical thinking more systematic, giving you a blueprint to follow in the thinking process. It's possible that without such training, you might think to this point or to that, without a roadmap.

To be noted in the above quotation is that the "mutually enhancing relationship" between the formal and informal means of acquiring critical thinking largely refers to the type of critical thinking in formal education that is "systematic" (and thus more general and transferable across domains) rather than "technical" (and thus specific to the practice of each academic discipline and as Claire claimed earlier that has little resemblance to the kind of critical thinking she used in everyday life). This distinction seems to suggest that the training in critical thinking in higher education cannot be replaced with disciplinary thinking. Therefore, for higher education to actively foster critical thinking rather than disciplinary thinking, more effort needs to be placed, at least, in the general education courses that stimulate students to think systematically and deeply across the disciplines and domains; and in the advanced courses, more open-minded invitation and thoughtful guidance from instructors to explore and reflect on the established methodology, approach, and parlance of the more specialized disciplines.

In addition, while recognizing the role of formal instruction in improving her critical thinking, transforming it into a more systematic, powerful tool of persuasion, Claire stressed

more often the important role in which self-initiated critical thinking played on the quality of one's thinking and writing in the academic setting:

> Yet I think if you only had the training without lots of thinking in everyday life, merely following what teachers have said about how to analyze or write essays, you might be like some other students who received training yet lacked self-initiated thinking—i.e., the kinds of essays produced by these two groups are different in terms of content and insight. While essays from the first group might present viewpoints that are similar…the latter might see things that are different.

In other words, observations and conclusions from thinking critically on issues or experiences in everyday life provide the necessary content/evidence and the particular stance of one's own that drive an argument construction or academic paper to fruition. It may be thus argued from Claire's case, critical thinking developed from formal and informal pathways can work complementarily, if not also necessarily, with one another. That is, while the former improves the thinking mechanism by making it more systematic, the latter gives the particular insight or individuality of one's thinking.

(4) Subsection summary

Claire's evaluation of critical thinking pedagogy in higher education critiques its current quality, because of the lack of explicit and committed teaching she felt that could challenge college students to develop greater capacity in this area. Her observation of a "highly technical" kind of critical thinking fostered through academic disciplines also raises questions about the often presumed transferability of critical thinking across domains—i.e., the notion that once students learn to think critically through disciplinary training (academic domain), they would automatically be able to think in life (personal domain) and as a member of a democratic society (socio-political domain). Yet as Claire's conception and application of critical thinking in the

personal domain demonstrates in the previous subsection, decision-makings and problem-solving in everyday life entail interpersonal complexities, ideological tensions, existential uncertainties, and higher personal stakes in ways that are often underexplored in the use of critical thinking in the academic domain.

The contrast between the kind of critical thinking students may experience or need in life and the kind fostered in formal education arguably leaves much to be reconsidered or "reconceptualized"(as some more recent educational critical theorists have argued) about critical thinking—i.e., the type that can better benefit students in an increasingly globalized yet ideologically divided world. We may ask, for example, *how can critical thinking fostered in higher education also be "more involved" to reflect what students like Claire were already doing in their practice of critical thinking in everyday life? Can there be more bilateral transferability of critical thinking in terms of content, perspectives, as well as skills across the domains—i.e., not just from the academic to the personal domain, but equally from the other way around? That is, if critical thinking in the personal/everyday life domain highlights greater importance or necessity for considering one's external (socio-cultural/interpersonal) and internal (core beliefs/individuality) contexts, how would the transfer of this contextual component impact argument constructions, essay writings, and knowledge production in the academic domain? Wouldn't that entail for academic writing greater transparency of one's assumptions and consideration of the other viewpoints?*

At the same time, Claire also asserted affirmatively that aspects of critical thinking learned from school (e.g. content and "systematic" approach/skill) have enhanced her critical thinking application in the personal domain and overall capacity in this area. Arguably, the limited but

positive influence of critical thinking in formal education can be seen as further support for exploring and developing critical thinking across domains for a better reconceptualization, pedagogy, and praxis.

III. DISCUSSION (Claire, in Comparison to Jiayi)

This discussion of Claire's experience as a transnational student from China and her particular perspective on critical thinking expands upon the above findings in two ways. First, echoing the discussion structure used for Jiayi, this discussion on Claire also begins with the contending cross-cultural pulls she had experienced, followed by analyses that draw upon the three theoretical lenses: namely, the sociological, psychological, and philosophical. The idea of a holistic and interdisciplinary framework is to provide a more in-depth exploration of Claire's experience as part of the larger transnational phenomenon in the global age (the sociological lens), of her internal meaning-making structure that shapes her experience with critical thinking and navigation in the late-modern world (the psychological lens), and of her experiences with critical thinking as an integral part of preparation for democratic citizenry that higher education purportedly aims to foster (the philosophical lens).

Second, the following discussion also builds upon key themes explored in the previous discussion, by comparing and contrasting Claire's case with that of the previous case of Jiayi. Juxtaposing the two in-depth case analyses will demonstrate a slice of the diversity within the transnational Chinese student population and their different cross-cultural/transnational experiences. Such a comparative analysis aims to explore how varied selfhood may (or may not)

shape the different acquisition and application patterns of critical thinking and, vice versa, how critical thinking may facilitate the maturation of the self.

1. Being Transnational: Navigating Contending Pulls Across Cultures

In comparison to Jiayi who felt torn between contending cultural norms and guiding principles as she considered what to study in college, Claire also wrestled with the "different extremes" that eventually led to a change of her undergraduate major—yet without a sense of unyielding dilemma. Arguably, as a "parachute," Claire was on her own at a younger, formative age and experienced more of the ideological tensions that seem to still exist between China and the U.S. In addition, while Jiayi was well-informed and prepared for college abroad, Claire had little knowledge of American culture and education prior to her arrival. Having then enrolled at a religious high school and lived with a host family for a number of years, she had close exposure to a segment of American society and encountered intense dissonances—from religious beliefs to learning styles. As people who have lived extensively in a different cultural environment seem to say in common: It typically takes some time, i.e., a few years, for the more subtle yet complex elements of another culture, such as different ways of thinking and believing, to settle in and take an effect on one's life. Indeed, by contrast to the more typical transnational or international Chinese undergraduates like Jiayi, Claire was more acutely aware and affected by the American way of life at its worst and its best. She was more sensitive, for example, to the negative impact of racial prejudice on her as a person of Asian or Chinese descent; at the same time, she also seemed to have taken more into heart the values or ways of life prominently manifested in the U.S., such as the spirit of empathy and social solidarity. To her, alternative ways of thinking and

being were not just something that belonged to another culture or group of people; they were also possibilities closely relevant as she thought through life choices and the values that she identified as her own.

It is difficult to tell with the two cases analyzed thus far, whether the greater cross-cultural tensions or dissonances Claire had encountered abroad also prompted her to face them in a more direct manner—i.e., actively considering the "different extremes" as she explored her own positions in between. The possible reasons why Claire, not Jiayi, was able to successfully examine and resolve the contending ideas (at least to an extent that she felt satisfied or "balanced") are topics we will continue to unpack in the following sections. What is common across in the two cases is that they both experienced the tensions intensely in their own ways and coped with the ensuing dilemmas privately, with little outside resources. And that contrast sharply with what Dewey as a strong proponent of education for democracy had advocated: education as an office of integrating the social and the psychological.

Granted, Jiayi had a well-educated and resourceful family members for support; yet given her default mode being "ignoring the larger questions," it did not appear that her family was able to help her think through conflicting ideas and choices. Granted also that with the sizable population of Chinese students abroad, this young generation of media-savvy students would find ways to be a source of support for one another. While that may likely be the case or trend, direct and intimate conversations for unpacking one's experiences and dilemmas seem to be rare among Chinese students and their friendship circles. As Claire mentioned, "Chinese students rarely discuss very private matters in conversations, like conflicts with parents….It would have to be very close friends to do that." This observation of a general lack of in-depth communication

was echoed by a number of other participants, who mentioned that they came to participate in the study for the very opportunity to reflect and share their experiences.

If the internal struggles with contending ideas and obligations are, as demonstrated by the two cases (and perhaps other cases as we continue to explore in the next chapter), prevalent among transnational Chinese students, it raises questions about the role of education in helping students to navigate the difficult questions, choices, and changes they face. Should American higher education do more to include these students' experiences and address their challenges that seem to reside not only in the cognitive but also, if not more so, in the intrapersonal and interpersonal dimensions? Is it even within the scope of formal education, one may ask, particularly of higher education, to care for its students in such a holistic way? While further unpacking Claire's experiences and perspective as a transnational Chinese student, the following sections—drawing upon three different theoretical lenses—also aim to explore the necessity as well as possibilities for higher education to take on a more active role in ensuring students' wellbeing while furthering their intellectual development.

2. Sociological Analysis: Social Demands of "Late Modernity" upon an Individual

Arguably, Claire represents a case of transnational Chinese students who thrived on the increased mobility and resources that have become accessible through globalization—in ways that were unimaginable for average Chinese families like Claire's just a couple of decades ago. Yet even as a story of personal success, Claire's account reveals a steep psychological and emotional price for those who migrated for better education or life opportunities in the global age. For individuals like Claire who traversed from a world of relative homogeneity and tight

socio-political control (typically the Global South or periphery) to an environment of diversity and individual liberty (the Global North or center), the ensuing effect of change was not only personal but also interpersonal. While Claire was able to cope with the contending pulls she experienced across cultures and even began to redefine what she truly valued with certain confidence, she seemed to be shaken to the core by the unanticipated tensions within her closest relationship at home. As Claire said in an interview: "The one thing I feel particularly envious of many other [Chinese] students is that their parents are very open and liberal-minded. Viewpoints that are unacceptable to my mother would be quite normal to them." Referring to students from families of higher social economic statuses, whose parents were often better educated and well informed, Claire wished that the generational gap within her family—further widened by her oversea experiences—were smaller so that she too could retain a close bond with her parents. Yet in spite of her tireless effort to inform or persuade them of her changing perspectives, it became increasingly clear to her that they were growing apart as she kept evolving abroad.

Even though Claire was independent early on, her sense of self was still characteristically Chinese in the sense that it is an interconnected selfhood where the tie to one's family is intimate and interdependent. That being the case, the increasing disconnection from her parents—not only in the physical sense as she moved away from home but in the intellectual and emotional sense as their viewpoints diverged over those years apart—bore heavily on her. It was as if in spite of the inevitable break away from traditional orders and values she had imbibed from her

parents growing up, she still wanted to "bring them along" and remain close to what she perceived as possibly "the only people who would unconditionally love me."[151]

Part of Claire's experience resembles what sociologists like Ulrich Beck called "disembedment" or becoming unbound by the constraints and the protections afforded by traditional orders (e.g. industrial modernity and traditional times). As explained in the theoretical framework chapter, disembedment is a stage or aspect of the "individualization" process that results from the structural forces of late modernity, such as mass mobility, knowledge expansion, and the ensuing rise of contending expertise or authorities. With increased freedom and opportunities in late modernity also come the risks and responsibilities; the onus is now on the individual to decide on matters big and small and give meaning to their life choices and experiences. As we saw in the case of Jiayi, dealing with such uncertainty and responsibility may be challenging and new for Chinese youths, especially for those coming directly out of a highly competitive yet prescribed Chinese education system. What we now see through Claire's case seems to be that the challenges of late modernity for transnational Chinese students may be compounded by the way in which their sense of self is structured—one that is closely tied with their parents or family. As an ideal selfhood as such would entail a stable interconnection with their family, the experience of disembedment or individualization that is largely taken for granted here in the West can be quite agonizing for those who had grown up in China. Claire's anguish over the disintegrating connection with her parents—"the only instance I feel deeply sad"—is a case in point. While she might successfully disembed herself from the confines of old beliefs that

[151] This view of parents as "the only people who would unconditionally love me" seems to be a common or popular Chinese perception, arguably supporting the cultural emphasis on filial reciprocity and duty.

no longer worked for her as she became increasingly independent abroad, she could not quite set herself free or distance herself from her parents without also seeming to feel a sense of loss or fragmentation within.

Claire was also aware that not all Chinese peers experienced the same challenge communicating and connecting with their parents. The contrast between Claire and the students from more privileged and liberal families reflects a rapidly developing China where people's educational background, financial resources, and familial dynamics have become much more diversified. The diversity within this generation of transnational Chinese students and their families substantiate the observations by Yan (2009) about the "multilayered and multi-temporal mix" of the traditional, modern, and the late modern elements in China today. Yet in spite of such enviable families with open-minded parents, which are on the rise in China, the country by and large still clings to its traditional and modern orders, with tightening control in its social and political domains in the recent years. For Chinese youths growing up at such a time, as Claire observed, the "implicit messages" they receive from schools or families were often mixed and sometimes contradictory: "You have to maximize your benefits on the one hand, but you also have to fulfill duty no matter what on the other. Maybe sometimes this duty [e.g. to one's parents] is in the way of maximizing your own benefits."

Claire cited a popular Chinese phrase "sophisticated individualism" to describe the dominant ideology that had shaped the youths of her generation into individuals with boundless ambitions and ability to maximize their personal development and benefits. The phrase in vogue also connotes a critique of the younger generation for their apparent lack of consideration or observance of traditional social and familial obligations. In other words, Chinese youths may be

encouraged all along to strive higher and seize opportunities increasingly accessible to them, but they are also being judged for the inevitable disembedment or imperfect individualization that come along with such competitiveness and diverse exposures in the global age.[152] As for Claire, in spite of her criticality and independence, she seemed to be affected by such moral chastisements, as she concluded rather harshly the following about herself: "I am essentially a very selfish person, because most of what the decisions I have made or things I want to do are based on the self—what makes me happy, what makes me free." When I asked how she felt about this characterization of herself, however, Claire seemed to deflect the weight of such social labels or pressure by asserting that she felt no guilt about who she was. Her confidence or belief in herself came from knowing how much she has tried to straddle the contending demands from the different worlds she traversed. She also knew from observation that she was not alone: "There's a lot of inconsistency left for us [her generation] to figure out; that's our job to figure it out."

In some ways, Claire's experience seems to run parallel to what has been taking place in China as a whole—impressive achievements along with undigested experiences and feelings that still await to be understood. While the former is a story of transnationalism/globalization in our current time, the latter is one of imperialism/colonization in the not-so-distant past. Yet they both are about encountering the West or the other that is substantially different and possibly better in some significant areas. *How much to retain what one has believed? How much to change without losing one's personal or national/cultural identity? What should one believe or*

[152] It is about giving them room and support for the deconstruction they experience and reconstruction they'll need that can bring about changes and transformations for the larger society moving forward in greater uncertain times.

how should one be if one is to remain open-minded to competing ideas and possibilities? Now that you have figured out what you want and who you are, what about your family and tradition that is still deeply rooted in another kind of order? Would you be happy and well without their support or a deep sense of connection? It seems as if fragmented pieces and mixes due to such an impact for a nation (e.g. China through foreign invasions) or an individual (e.g. Claire through personal investment abroad) still await to be seen, healed, and transformed into something wholesome and radiant from within.

Given the actual intensity and massive scale of this cross-cultural encounter as the structural forces of late modernity continues to propel people migrate, interact, and come to term with the diverse others, it seems necessary to ask: *What role has education played in mitigating such challenges or crises that are not just personal but also national and global? How can education serve, as Dewey (1916) had already envisioned a century ago, "a steadying and integrating office" for students who are "subjected to antagonistic pulls and [are] in danger of being split into [beings] having different standards of judgment and emotion for different occasions"(p. 26)?*

3. Psychological Analysis: Meaning-Making Structure

For Claire, arguably more so than for Jiayi, the extremes that existed between China and the U.S. were felt more acutely in all dimensions: cognitive (epistemology)—different attitudes toward learning and intellectual rigor (at least at the secondary level as she experienced it), intrapersonal—contrary belief systems and views on virtues and sex, and interpersonal—more equal, empathetic, yet independent relationships with authority, with others, with family. Yet in

spite of the numerous intense dissonances, the initially disorienting diversities and tensions generated from the cross-cultural encounters seemed to have, in the end, largely served her well: they stimulated her thinking, enriched her experiences, and facilitated her growth and understanding of what she really valued rather than believed out of habit. Coming from what she described as an "average middle class" family in China and with little knowledge of the world outside, Claire seemed to have been genuinely surprised that her desire to look for an educational alternative abroad could have led to so many adventures, experiences, and exposures of different ideas and people that she had never anticipated. What she gained was not just a better version of herself aligned with the norm—a degree from a prestigious university in the U.S., well-developed knowledge and language skills that are transferable and marketable across the globe. Through exposure to diverse ideas, people, and experiences, she also gained an expanded concept of her true self that is arguably different from the prior version shaped and limited by her experiences growing up in China. If Jiayi's story is about succeeding with cautionary weariness within the system of deterriortized elites structured by globalization, then Claire's is about a demonstration of perhaps the other side of the same coin—individualization or becoming an agent for oneself in the global or late-modern age.

Both of these students are successful by typical standards (GAP, academic competencies, and competitive prospect) and by their own goals or designs. Although their parents may have paid different amounts of money for their education, both families gave a significant portion of their means to support their children. In other words, the financial stakes and pressure to succeed abroad were high for both Jiayi and Claire. Yet by juxtaposing these two cases side by side, what comes to the fore is that while one succeeded out of the motivation for greater

success, the other was motivated by a desire for meaning. For Claire, success was important insofar as it demonstrated the hard work or commitment she had in doing things that made sense for her. Perhaps as a result, Claire actively examined contending pulls that arose from her experiences and was able to resolve most of the tensions within herself (i.e., to the degree that she felt comfortable with) in ways that Jiayi did not pursue and was not able to resolve.

The following discussions, leaning on the lens of constructive developmental psychology, explore how Claire's internal meaning-making structure allowed her to make sense of her confounding experiences as a transnational student.

(1) The interpersonal dimension

In the interpersonal dimension, Claire was largely "self-directed" in the sense that she was the ultimate arbiter of the values or significance of what others think or do, relative to her. Claire's interpersonal orientation contrasted sharply with Jiayi's "other-oriented" nature, manifested in her (Jiayi's) habitual deference or reference to others' actions or opinions without being able to assert or incorporate her own preferences. This does not mean that Claire cared little about others; on the contrary, she exhibited deep curiosity for other people's different ways of thinking and being and actively inquired and considered their differences as possible alternatives to what she had believed or how she could live.

In fact, the scope of her encounter or inclusion of others into her thinking process seemed to be wider or more varied. While Jiayi relied primarily on one type of interpersonal relationship for support and guidance (i.e., her close family members), Claire reached out to different sources of information (e.g. in-person or online) and people who may have been most relevant for the

particular issues or decisions she had in mind. For example, for the decision of where to study for graduate school, Claire consulted with TAs, professors, and friends with a conscious intention to gather varied sources of information or suggestions to help herself process the important decision. In many ways, her (Claire) casting a wider social net for support and independence in the ultimate decision-making process stemmed from the lack of guidance and understanding that her parents could provide—a fact or observation she said she was aware of from an early age. While that realization about her parents' limitations might have felt like a setback at the time, Claire said that it provided her the original impetus to search for resources elsewhere on her own. Overtime, she developed the habit, skills, and confidence to rely on herself and the knowledge she found in the wider world outside of her family. And the natural competences and dispositions she gained through the independent process arguably prepared her well for navigating the thrills and the challenges of late modernity: invariably disembedment from the comfort and constrains of traditional contexts and reliance on less-personal knowledge or expertise for the needed security in decision-making.

As mentioned in the chapter on Jiayi, from the view of constructive developmental psychology, the extent of one's growth towards maturity in all three dimensions, including the interpersonal dimension, depends on the strengths of two countervailing forces: "the urge to progress" (e.g. try something new) and "the urge to conserve" (e.g. retain things as they are). While the former force was stronger than the latter in Claire, the reverse was more apparent in Jiayi. Juxtaposing the two cases, Claire had clearly enjoyed a larger amount of freedom from her parents, and arguably the different familial dynamics (i.e., relationships with parents or parenting styles) seemed to have played a role in the strength of each force within these two students . For

Claire, having had relatively more liberty at home—in ways that are atypical for Chinese children, she was less constrained to follow her "urge to progress;" gradually, the repeated exercises might have fostered both confidence and skills for trying out new things or experiences.[153] It may even be argued that the different familial dynamics not only shaped the way they associated with others in the interpersonal dimension but also the way they responded to their own voices in the intrapersonal dimension, as we shall explore in the following subsection.

(2) The Intrapersonal dimension

In the intrapersonal dimension, Claire exhibited an attitude toward herself that is affirmative or affirmational, rather than negational as was the case in Jiayi. This affirmative attitude was manifested in the way that she had consistently followed her own voice and enacted her self-directed plans, even though she also became increasingly more apt at considering and incorporating relevant suggestions from others. As Claire reflected back on her journey, some of the earlier self-directed actions were arguably drastic and "willful" even by her own standard; notably, the decision to quit high school in China before venturing abroad at a young age. Interestingly, not unlike Jiayi, Claire also did not possess a strong interest in a particular academic field—i.e., something that she absolutely had to or wanted to study. As a result, Claire also changed her major a few times and encountered similar questions: Whether to pursue after security/financial practicality or passion/intellectual interest. Yet unlike Jiayi who felt "torn" by

[153] And the proposed hunch here that the nature of familial dynamic may have a significant impact on one's meaning-making structure will be further verified through the analysis of other cases in the next chapter.

the countervailing forces or positions in the decision-making process, Claire changed from one position to another without an intense feeling of confusion or dilemma.

As mentioned by Claire, her initial monetary interest was so strong that the first major was chosen for the very purpose of lucrative financial gains; it also took numerous rounds of persuasion and consideration before changing to her eventual major—something that would provide sufficient financial stability but also more intellectual challenge. On appearance, Claire's original position may be aligned with or reflective of the dominant Chinese norm that prioritizes financial security, just as her later position may be a partial result of American academic culture that emphasizes intellectual endeavor. In a deeper look, however, both positions are demonstrably grounded in her own experiences.

For example, Claire's initial pursuit of financial priority stemmed from her background as a parachute and the realization that without her family's limited financial means, she would have been like her middle school friends whose families could not afford to support them for a better education abroad. Naturally, Claire felt the need or responsibility to build a secure financial future, so that she would have the resources to provide the same for her children in the future. By contrast, coming from a resourceful family in one of the largest metropolises in China and having gone through elite educational programs, Jiayi did not seem to exhibit the same kind of immediate or visceral financial concern or insecurity that had propelled Claire to pursue a college major for the sole purpose of financial gains. Deciding between something that might interest her more intellectually and something that might bring prestige as well as financial and socio-political security, Jiayi chose the latter out of trust and loyalty to her family, in spite of her doubts about the "self-serving" bend in this approach. Juxtaposing the two cases, it may be argued that

perhaps it is not so much what one chooses but the underlying motivation or means by which a choice is made that is the issue/that gives one qualms or not—whether it comes organically out of one's actual experiences or externally dictated by someone else's opinions or authority.

Similar to the rationale for her initial choice, Claire's later change pivoted toward intellectual pursuit instead of pure financial considerations was largely inspired by something personal or experiential: Her association with professors and peers whose intellectual passions felt encouraging to her. It was as if she uncovered a bit more of herself through "know[ing] that people like me exist;" and the decision or leap—to do something that was not immediately practical but internally rewarding for herself—was arguably an affirmation of who she was in ways that might have been neglected or superseded by other life considerations.

Perhaps it can be thus argued that the urgency or reality of her actual experiences helped Claire to make up her mind more decisively in the face of contending options that would have been otherwise difficult to decide. By contrast, Jiayi seemed to have struggled with a similar set of conflicting positions in more or less abstract terms, i.e., as mere ideas or suggestions that she had been told by others (Chinese or American) or felt compelled to follow. In Jiayi's case, most of her experiences seemed to have been designed or dictated by her family or the educational systems within which she always strived to excel. Arguably, the lack of self-directed experiences and experiential knowledge derived from such experiences might have made the task of big decision-makings and processing contending options much more difficult for her than for Claire. Juxtaposing the two cases, the importance of having an affirmational attitude toward oneself and following one's inner voice in decision-making comes to the fore. This is because such an

intrapersonal attitude leads to self-directed experiences and experiments from which knowledge about the self in relation to the world can be gained and later utilized for directing further experiences. Such experiential knowledge unique to the self also becomes the necessary basis by which diverse and even contrary ideas may be considered and important decisions may be made for oneself.

Arguably, developing such an affirmative attitude and the ability to hear one's voices may be more challenging for individuals like the transnational Chinese students (and Chinese in general), in whose meaning-making structures the interpersonal dimension seems to dominate. In Jiayi's case, opinions from the interpersonal sphere—whether in the smaller unit of her family or the larger unit of society (encapsulated in the phrase "everyone else")—seemed to submerge and replace her own voice and thinking process in the personal domain. In her introspective moments, Jiayi demonstrated clear preferences for what she liked or where she wanted to live; however, in face of different or contrary opinions from others, it seemed that she was not able to include her own ideas or preferences as something equally, if not more so, important in her decision-making process. Rather, voice from a dominating interpersonal dimension—internalized as collective wisdom, popular norms, or benevolent authorities—arguably made it harder for Jiayi to trust the knowing from within.

In Claire's case, as she enjoyed liberty and exercised independence from her parents early on, she was more assertive in her interpersonal relationships at home and demonstrated little reservation in following her own voice or ideas. In contrast to Jiayi, Claire was neither afraid of nor new to the idea of being responsible for her own decisions, having had much more freedom

and decisional power for herself growing up.[154] And the independent experience abroad seemed to further strengthen an already robust intrapersonal dimension operating at the center of her meaning-making structure. Interestingly, along with the growth in the intrapersonal dimension, the scope of her interpersonal dimension also seemed to have expanded.

For example, as she came to appreciate the quality of "empathy" in others she had encountered abroad and in herself as an essential personal attribute, her original orbit of care which had centered around her family or intimate circle of friends expanded to others who may not be immediately related or close to her. She described of becoming more "patient" with others who were different and more concerned with others' plights as "something that could happen to me too." Arguably, the more supportive environment for people as individuals in the U.S. might have been an important factor contributing to this expansion of the interpersonal dimension. And the interpersonal in Claire became an extension that emanated from within or the intrapersonal, rather than the reverse—where the interpersonal dictated the intrapersonal—as might be the case with Jiayi or the more typical Chinese selfhood or meaning-making structure.

(3) The cognitive dimension

In the cognitive dimension, Claire demonstrated an epistemic position that has moved well beyond binary thinking, even though growing up she often saw things in terms of "black or white." By the time we met for the interviews, Claire seemed to have retained her early

[154] The different familial dynamics and their possible influence on Jiayi and Claire's intrapersonal dimensions were evident even in small ways. For example, while Claire's father would buy her with whatever she wanted to read growing up—be it low-brow romance or high-brow classics, Jiayi's mother always directed her to read the "more serious" books.

propensity for moral judgment; at the same time, she said she had also begun to perceive many things in life as relative or "in the gray area." It may be worth noting, as a relevant diversion, that even though Claire's new perception of many things being "in the gray area" seems to align with the viewpoint espoused by her family (one that is also fairly common in China), there is a subtle but significant difference. As used by her parents, "gray area" conveyed the idea that "there may be something wrong with this [e.g. action, event], but it's not that serious, so you should try to adapt to it rather trying to fight against it." By contrast, in Claire's description, it meant that "many things are relative, I always follow my own voice, but perhaps others have their own voices [that are different from mine."[155] Arguably, the most prominent difference between these two versions of relativist thinking lies in the latter version's (Claire's) emphasis on the rights of an individual—anyone can or should think and be as he or she prefers.

Experiences abroad and the dissonances that can result from new and varied experiences were likely to have fueled the change within Claire's epistemic position. Exposures to different people and ideas broadened Claire's view, helping her to recognize diversity as a fact that needs to be accepted and that can be appreciated for stimulating one's own thinking or search for personal truth. Claire learned not to be too quick to judge others' ways of life or impose her view on them, except with her close family members on key issues that matter to her choices and their familial connection. At the same time, Claire was firm with her own guiding principles or examined values, having considered various perspectives and options carefully. In other words,

[155] This quotation demonstrates Claire's own take on a relativistic position that is more aligned with the ideology or worldview of American/democratic culture than Chinese culture. The Chinese connotation of "things in gray area" often suggests that one should obey rather than challenge authority and established customs or norms and that one should accept things that are not quite right for one's perspective but may not be egregiously wrong from the top-down or the dominant perspective.

beyond a relativist worldview, Claire was also committed to the values or truths that she came to embrace for her own life.

Borrowing the works of constructive developmental psychologists like Robert Kegan and Marcia Baxter Magolda, Claire's cognitive dimension or meaning-making structure has arguably reached an advanced phase called "self-authorship." According to Boes, Baxter Magolda, & Buckley (2010), self-authoring individuals see knowledge as constructed in context and therefore internally define their beliefs and values, even though external perspectives are also considered and even incorporated; moreover, such individuals set relationship limits with others and evaluate themselves according to internal standards. Claire clearly exhibited traits of a self-authoring individual, for she was aware of the larger context as relative but was nevertheless committed to her personal truths, which also entailed bringing them into action and communicating to those she felt mattered.

If the development of Claire's three-dimensional meaning making structure can be summarized, it might look like the following: With a combination of her personal attributes (e.g. bright intelligence in the cognitive dimension and strong will in the intrapersonal dimension) and congenial conditions (e.g. hands-off parenting style in the interpersonal dimension), Claire enjoyed an unusual amount of liberty as a child within her familial context. The largely non-interfering dynamic at home, along with a plentiful exercises of her independence and agency, practices reinforced an affirmative attitude Claire had toward herself. Having a trusting or strong sense of self in the intrapersonal dimension, Claire was more able to follow her voice, convert her ideas into actions, and make decisions in face of uncertainties. As she gained more experiences directed by herself and accumulated experiential knowledge about and for herself

along the way, she was less intimidated about taking responsibilities for her choices. While she sought advice from others, she listened selectively to those who had relevant expertise to guide her and was not easily stirred (as Jiayi was) by the opinions of those who “lived by the norms of the larger environment.” Even with the sources of advice she trusted, she sought a diversity of guidance and information, knowing that whatever knowledge that was shared with her was “grounded in context” (cite, Baxter Magolda) or shaped by the experiences and personal circumstances of the persons who offered such knowledge; therefore, she needed to process and selectively incorporate such knowledge into her own thinking and decision-making. This thorough process of contextualizing what others said and what she needed demonstrates Claire’s advanced cognitive dimension, one that both relied and further strengthened her understanding or sense of self in intrapersonal dimension. In contrast to Jiayi, Claire was demonstrably more comfortable with accepting and committing to her needs and the changes that could actualize or bring about her individuality.

(4) Further explication through the work of Belenky et al.

To further explicate the differences between Jiayi and Claire and what each may be experiencing as knowers, I now draw upon a groundbreaking work in the subfield of constructive developmental psychology by Belenky et al. (1997 [1986]) that focused particularly on women’s intellectual and selfhood development. Two salient concepts from the work—i.e., “separate knower” and “connected knower”—seem particularly applicable for capturing the contrast between Jiayi and Claire and its significance.

By “separate knowers,” Belenky et al. referred to women or people whose knowledge or understanding of an object (a problem or a person) is grounded on technical analysis or logical reasoning, typified by questions such as “what technique can I use to analyze it” (p. 110) or “what were the steps in your reasoning” (p. 114). In such a knowing process, the self is typically “weeded out” for the sake of presumed objectivity; moreover, the application of knowledge gained through such a process is also “impersonal,” as knowledge is often applied to problems or people without consideration for their individual contexts or differences. Academic knowledge or disciplinary training was categorized by Belenky et al. as a prominent example of separate knowledge or knowing. According to the study, while separate knowers may excel in applying their analytical skills on problems in the academic domain, they revealed difficulty in doing the same for issues in the personal domain. For separate knowers who felt thus alienated from themselves and the academic knowledge or skills they have gained, they often expressed the wish to move beyond this way of knowing and “yearn[ed] for a voice that is more integrated, individual, and original—a voice of their own” (p. 124).

These key characteristics of separate knowers echo much of Jiayi’s experiences revealed through the interviews: e.g. a lack of consideration or commitment to her own preferences on the one hand, a desire for her individuality or uniqueness on the other hand; a competent grasp and usage of critical thinking in academic writing, yet a vague perception and demonstration of the same set of skills and dispositions in personal decision-making. Arguably, the very challenge Jiayi described about critical thinking—the ability to integrate different views into a coherent whole—may be another reflection of a separate knower or a knowing that was severed from the self. This is because within the context from which the challenge was described, Jiayi seemed to

assume that only if she had more or better technical or critical thinking skills, she would have been able to achieve an integrated view. While it may be possible theoretically—to evaluate the merits of different views and synthesize them in the abstract and devoid of one's personal stance, the following description from Belenky et al. of connected or constructive knowers seems to suggest otherwise. The researchers revealed that to achieve an integrated understanding or knowledge, the knower must be "an intimate part of the known" (p. 138).

As described by Belenky et al., "connected knowers" are those who approach an object by asking about its context and the circumstances or internal logic from which an action or a problem arises. For connected knowers, the self serves as an indispensable "instrument of understanding" (p. 122). They typically exhibit "more faith in unjustifiable intuition" (p. 129) and "respect for their own reactions, not as final truths but as starting points for understanding (p. 122-123). They also demonstrate more awareness of the limitation of rational reasoning, even though they also recognize the necessity of applying careful reasoning in one's thinking and decision-making processes. According to the study, "experience" and "empathy" play crucial roles in connected knowers' way of knowing. This is because through empathy, connected knowers listen attentively to others' experiences and expand their experiential bases vicariously. As connected knowers derive or trust knowledge gained through experiences, expanded experiences through sharing and listening lead to an extension of their knowledge bases as well. When connected knowers can construct knowledge by "weaving together the strands of rational

and emotive thoughts" and "integrating objective and subjective knowing" (p. 134), they reach the mature phase of knowing as "constructive knowers."[156]

The above descriptions of connected or constructive knowers align well with Claire's way of knowing: e.g. her inquisitive curiosity about the ways that others think and live and their undergirding rationales, her trust in her inner voice or intuition, and her reliance on her own knowledge drawn from experiences for decision-making. By contrast to Jiayi, having a way of knowing that was grounded on her sense of self and experiences, Claire did not exhibit the same problem or challenge with critical thinking. She did not wonder abstractly how synthesizing different or opposing views can be done; rather, she seemed to just go right into doing so by the following steps: examining different viewpoints, evaluating them from her own perspective, deciding on a position or a modified version that she could accept, and being prepared to modify her beliefs or actions when more information either about herself or others would lead to a change of mind. Gradually through this iterative process, many of her old views and attitudes changed, and what she uncovered seemed to be an ever evolving but also more stable and authentic version of herself—one that was also a unique amalgamation of the different forces and ideas she had been exposed to cross-culturally.

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[156] Belenky et al. also defined "connected knowers" and "separate knowers" as two types within the same category or phase called "procedure knowers," as both types of knowers "learn to get out from behind their own eyes and use a different lens, in one case the lens of a discipline, in the other the lens of another person" (p. 115). By contrast to subjective knowers whose source of knowing derives primarily from one's feelings and intuition, procedure knowers exhibit salient use of reason, keen interest in *how* to know something, a certain amount of withholding of one's own judgment or feelings for the purpose of better objectivity or understanding. According to the study, the mature phase of knowing is called "constructed knowers," where knowledge is constructed by "weaving together the strands of rational and emotive thoughts" and "integrating objective and subjective knowing" (p. 134). For connected knowers, to construct knowledge as such would probably entail greater integration of their personal knowledge with disciplinary knowledge. By contrast, for separate knowers to reach this phase of constructive knowing, they would need to first "reclaim the self" (p. 134).

As a connected/constructive knower, Claire also developed her own conception of critical thinking that differed from the kind fostered in academia—where separated/procedural knowing, as Belenky et al. argued, is typically emphasized. Well-trained in her STEM major and observant of the teaching of a few non-STEM disciplines, Claire also knew how to operate as a separate/procedural knower, churning out mathematical proofs or academic papers where disciplinary "objectivity" or "technicality" was the focus or criteria of evaluation. According to Claire, while knowledge from one's experiences may constitute an important source of material or evidence for one's critical thinking in academic writing, the way writing has been structured or other applications of critical thinking in the academic domain have rarely led to a substantial reflection of her existing knowledge or belief—one that, as she experienced in the personal domain, can propel substantial intellectual and personal growth. Understandably, having developed her own version of critical thinking that typically activated all three dimensions of her meaning-making structure, Claire often conveyed a sense of doubt in the interviews when describing critical thinking in the academic domain: *Is that really critical thinking?*

Drawing upon Dewey's philosophical lens, we will continue to explore in the following subsection the nature and importance of the kind of critical thinking that Claire had forged on her own, particularly in relation to the goal of democracy that higher education often purports to safeguard through its fostering of critical thinking.

4. Philosophical Analysis via Deweyan Concepts of "Experience" and "Democracy"

Having developed critical thinking on her own, Claire offered a rich account of her conception of critical thinking, much of which has been explored and detailed in the findings.

Therefore, the following discussion on Claire's critical thinking takes a shorter and different form from that on Jiayi's. The discussion will begin with a brief comparison between Jiayi and Claire's experiences and perspectives of critical thinking, encompassing the major themes that had been explored in Jiayi's case: the teaching, learning, and application of critical thinking in the personal and academic domains. The ensuing or major part of this section will focus on highlighting key characteristics in Claire's conception of critical thinking and explicating its significance by drawing upon Dewey's philosophy of education for democracy. Through a philosophical lens for a closer look at Claire's understanding and usage of critical thinking, the meaningful connection between critical thinking and democracy may become clearer.

(1) Similarities and differences in Jiayi and Claire's critical thinking

In many ways, Claire's accounts clarify and support some of the key findings from Jiayi's accounts of the teaching, learning, and application of critical thinking in the academic and personal domains. For example, they shared similar experiences or reflections on the teaching of critical thinking in formal education; that is, while formal education did contribute to their critical thinking skills, it alone was not sufficient to foster strong critical thinking. As STEM majors, both students questioned or rejected the motion that the kind of thinking fostered in STEM was critical thinking; moreover, they also described, albeit in different ways, the insufficient extent to which critical thinking was demonstrated and fostered through the teaching and classroom discussions of non-STEM courses. Their critiques of critical thinking in the academic domain demonstrate a shared understanding of critical thinking as something more than logical thinking, discipline-specific analytical skills, warranted assertions of one's own position, or even socio-

political critiques as typically transmitted or fostered in academic settings or subsumed under the term “critical thinking” in higher education.

In addition, for both students, important aspects of their learning and practice of critical thinking were advanced through informal pathways. For Jiayi, while formal education (including an SAT preparation course) provided her first exposure to the concept of “critical thinking” and some training for better reading comprehension and argumentative writing, her discussion with a friend outside of school led to a genuine appreciation of critical thinking as uncovering multiple perspectives and as something that was intellectually stimulating and personally rewarding. The arguably greater role of informal learning in the development of critical thinking is even more apparent in Claire’s case, as she developed her capacity to think critically largely independently and through informal means. As a result, critical thinking for Claire was a natural response to the contending views or beliefs she had experienced all along in China and in the U.S. While critical thinking in formal education provided her with a more refined systematic approach, her own practice and conception of it—which will be explored in-depth in the following subsection—seem to far exceed the way in which it has been typically conceptualized or practiced in the academic domain.

Perhaps in connection to the varied extent by which they each acquired critical thinking through informal and formal means, Jiayi and Claire exhibited greater difference in the levels of critical thinking practice in the personal domain than in the academic domain. That is, while Jiayi’s acquisition of critical thinking was shaped to a greater extent (than Claire) through formal means, her application of critical thinking appeared to be more conscious and frequent in the academic than the personal domain. By contrast, having developed her critical thinking largely

on her own through life experiences, Clair's practice of critical thinking in the personal domain was "more involved" and constant than in the academic domain where the extent of critical thinking application was largely defined or constrained by the courses that she took.

Yet in their different ways, their accounts reveal a more complex personal domain that necessitates a more nuanced conceptualization and application of critical thinking, where cognitive/rational reasoning alone would not suffice. Rather, critical thinking in the personal domain calls for maturity across three dimensions—the cognitive, interpersonal, and intrapersonal—of the meaning-making structure arguably at the core of one's selfhood.

In Jiayi's case, her relatively weaker intrapersonal domain—i.e., other-oriented and overshadowed by authorities—seemed to impact her selection of what counted as relevant evidence and sources of knowing for her decision making. In the prolonged debate about her college major or future career pursuits, for example, she largely excluded her inner voice or own knowing as an important source of consideration in the decision-making process. By contrast, in the academic domain where the expression of one's opinion is explicitly encouraged or required (e.g., in writing papers), Jiayi did not find asserting her own position to be an obvious challenge.

In Claire's case, her stronger intrapersonal domain was manifested in her affirmational attitude toward what she believed and in her confidence to follow her own voice while knowing others may have different preferences. Yet in spite of her self-directed orientation and a more assertive approach in the intrapersonal domain, she did not demonstrate a narrowness in her choice of evidence or thinking for decision-making. Quite contrarily, Claire demonstrated a

capacity to gather and process a wider array of sources as evidence for decision-making; her critical thinking was considerably stronger just as was her sense of self.

The substantial contrast between Claire and Jiayi's sense of self and their different levels of critical thinking, particularly as practiced in the personal domain, seems to suggest an intimate connection between selfhood and critical thinking. And this relationship between different senses of the self or types of meaning-making structure and varied levels of understanding and practice of critical thinking is important to understand, particularly for the purpose of designing critical thinking pedagogy that can effective benefit students' intellectual development and sense of well-being. While this central theme will continue to be explored in the rest of the dissertation, the following discussion shifts the focus a bit for a deeper exploration of key components in Claire's conception of critical thinking—one that contrasts substantially from a conventional understanding of this thinking approach and illuminates its nature and transformative potential from the ground-up.

(2) Key components or characteristics of Claire's conception of critical thinking

First of all, in comparison to the dominant conception[157] of critical thinking in academia that prioritizes its analytical or logical aspect,[158] Claire's conception highlights the underexplored mutual relationship between one's belief system and critical thinking. In Claire's description, as

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[157] By "conception," I refer to a detailed discussion of a concept such as "critical thinking." A conception provides more elaborate explanation or description of the concept than a definition that is more condensed and succinct. Claire's conception of critical thinking is gathered from her statements on how she perceived and practiced it.

[158] Conceptions of critical thinking that highlights its logical aspect can be seen in Ennis' original definition that purported ushered the critical thinking movement: "the correct assessing of statements." In addition, various conceptions provided by participants in this study also demonstrate the dominance of this aspect in the learning and application of critical thinking in formal education—see further analysis in the next chapter.

her beliefs constituted the criteria by which she evaluated claims as part of the critical thinking process, what she believed or valued invariably shaped the outcome of the thinking process. At the same time, the structure or systematic steps—such as gathering evidence, evaluating options, and deciding on a position or a choice— by which her thinking proceeded as "critical thinking" also contributed to the improvement of her belief system. For example, in the evidence or information gathering stage of the thinking process, exposures to ideas and perspectives different from her own have led to examination and eventual adjustment of her original positions or beliefs. The change of orienting principle by which she chose her college major (as detailed in the findings) is a case in point. In short, Claire's practice of critical thinking highlights the inextricable connection between thinking and believing—just as one's belief system plays an indispensable role in one's critical thinking, the critical thinking process can also play a beneficial, if not also necessary, role in improving one's belief system. Critical thinking practiced as such can promote not only cognitive development but also personal growth.

Secondly, in addition to differing from other popular perceptions of critical thinking in academia, such as "seeing things from multiple perspectives" or "analyzing/problematizing arguments (constructed by others)," Claire's conception of critical thinking goes beyond the level of relative multiplicity and examination of assertions from the other. Rather, in turning thinking inward to examine her own belief system in light of what she heard or learned from interacting with diverse others, critical thinking as she experienced can be used to construct better understanding or truth about herself and matters that are complex and uncertain. In other words, critical thinking is a truth-seeking tool or process— about oneself, life, and the world. While critical thinking necessitates perspective-sharing or critiquing ideas proposed by

others, it also goes beyond this problematizing or deconstructing stage and aims toward some higher purpose(s) or reconstructive function(s) for the individual and the society. In Claire's practice of critical thinking in the personal domain, she seemed to have often went beyond the mere multi-perspective stage as she considered new ideas or beliefs not merely as something proposed by or belonging to others but as new possibilities for her to consider and adopt. Through this "more involved" attitude or interconnected openness that sees a bit of others in oneself and oneself in others, Claire opened herself to a host of larger, existential questions: *e.g., who am I, why should I believe in this or do that when there are in fact a diversity of options as lived by others?* Through such questions uncertainties about what one had known or believed could arise, which may eventually lead to a better examined understanding of oneself, others, and the world. Arguably, in this process of deconstruction and reconstruction of the self and knowledge, critical thinking as a truth-seeking pathway plays a paradoxical role of both leading one into uncertainty and out of it with new commitments.

Thirdly, in contrast to conventional conceptions of critical thinking that also often capture its partial aspects, such as "evaluating the pros and cons," critical thinking as described by Claire represents an iterative process, entailing an active and a passive phase that are mutually perpetuating and that improve the process as a whole. As described in the findings, the active phase refers to the utilization of one's belief system to evaluate different options and claims that would eventually lead to an informed decision or conclusion; the passive phase describes reflection or examination of the belief system in use, potentially leading to a partial replacement of the old with new beliefs that are better warranted. The improved belief system

from the passive phase then becomes the basis for the next active phase in the ensuing process of critical thinking, so on and so forth.

Critical thinking as such echoes Dewey's description of "reflective thinking" or "critical thinking" (as it has been argued that he used the terms interchangeably; more discussion of these terms has been included in the literature review) in *Democracy and Education*, where it was also sometimes called "reflective experience." As an "experience"[159] in the Deweyan sense, there must be an active phase—when "we act upon it" or "do something with it [i.e., the thing we experience]"—and a passive phase—when "we suffer or undergo the consequences [of our action on the thing]" and "when the change made by action is reflected back into a change made in us" (p. 150). In other words, the passive phase represents a period of reflection or thinking about the connection between what we try to do (e.g. evaluate or make a judgment based on one's belief system or criteria) and what happens as a result (e.g. the action or decision made based on our evaluation or judgment). According to Dewey, an experience insofar as it can be "an experience in any vital sense of that term" (p. 150) must entail reflection or reflective thinking that makes cause and effect connections between actions and consequences; such thinking results in meanings that can be gained or learned from an experience. Vice versa, thinking or reflective thinking should be inextricably connected to or derived from experience, without which thinking would be "separated from active concern with the world" (p. 154) and create a "deluge of half-observations, of verbal ideas, and unassimilated 'knowledge' [that] afflicts the world" (p. 155). In short, reflective thinking and experience are intertwined in Dewey's

[159] While the word "experience" is used previously and throughout most of the dissertation in the typical sense, as defined in the Webster dictionary—i.e., denoting "an event or occurrence that leaves an impression on someone"—it is used in this segment differently in the Deweyan sense.

philosophy of education; they come hand in hand, as perhaps suggested by the phrase "reflective experience."

Granted, Dewey may not have spelled out so explicitly the examination of one's belief or value system as an essential part of the reflective thinking experience in the same way that is highlighted in Claire's conception of critical thinking. Dewey's interest in "science" as a paradigmatic example of reflective or critical thinking may have shaped his description of reflective thinking in scientific terms, such as the repeated usage of "hypothesis" there.[160] Yet just as Dewey's conception of science is broad, his use of "hypothesis" may also refer broadly to a decided or temporary position based on which ensuing actions or decisions are made. Therefore, if we can see "belief" or "believed position" as a form of hypothesis and substitute "belief" with this broad sense of "hypothesis," then the vital role that belief plays in the iterative thinking process—as emphasized in Claire's conception—would arguably be supported by Dewey's version of critical or reflective thinking as well.

Expressed differently, what Claire practiced on her own as critical thinking was arguably "reflective experience" in the Deweyan sense. And what Dewey described as "reflective thinking/experience" closely aligns with Claire's conception of critical thinking: An iterative process in which hypotheses/examined beliefs play a central role and may be further improved through the thinking process. As this process invariably brings about changes in the world (through its active/trying phase) and within oneself (through its passive/reflective thinking phase), its role may indeed be paramount for a democratic society and its citizens—at least in

[160] The full descriptions on Dewey's used "science" in a broad sense and "reflective experience" are in the literature review chapter.

the way Dewey (1916) had envisioned "democracy" as a society or a way of living that embraces change and "an ideal of such change as will improve it" (p. 88).

Fourthly, in contrast to the logical-orientation and direct expression of one's critical thinking in the academic domain, Claire's application of it in the personal domain demonstrates the need for not only a diverse array of evidence and perspectives but also varied sources or means of knowing—including those coming from the so-called non-rational dimension, such as one's inner voice. In other words, for critical thinking to be critical of itself or practiced in a vigilant and reflective way, it should not supersede its limits but be open to and work with other means of knowing. In Claire's case, because of her recognition and inclusion of the heart or her inner voice, she was able to think and act with self-acceptance, flexibility, and even some inconsistency that felt appropriate for different contexts. The liberty and agency by which she followed her inner voice or knowing was also supported by her reflection of past experiences and by a maturing epistemic position that perceived many things beyond a binary framework. The mind and the heart each play an indispensable role in Claire's world and together they complemented each other in helping her to achieve a sense of balance and continuity as a person who frequently had to navigated through changing experiences, new ideas, and inevitable tensions arising from encountering multitudes of diversity and differences.

In addition, as Claire's case demonstrates, the application of critical thinking in the personal domain is often complicated by a more varied or complex audience outside of academia that may not readily share the same prioritization for logical reasoning or rational analysis as emphasized in universities. This issue of audience and the stark difference between an academic audience (i.e., professors who read and grade the papers) and a general audience (i.e., one's

parents or friends) may be particularly pronounced for transnational Chinese students, for ideologies and sources of evidence used to support conclusions often diverge significantly between those used at school in the U.S. and at home in China (or in a Chinese household). Perhaps the necessity for considering varied forms of knowing and flexible strategies for communicating one's position was another reason why some transnational Chinese students like Claire described their application of critical thinking in the personal domain as being "more involved" than their use of it—relatively pure and simple— in the academic domain.

Yet according to Dewey in *Democracy and Education* (1916),[161] consideration or sensitivity towards the other when sharing one's perspective or assertion is essential for communication as a "conjoint communicated experience" that marks a democratic way of life. To communicate one's experience or position as such requires "getting outside of it, seeing it as another would see it, considering what points of contact it has with the life of another so that it may be got into such form that he can appreciate its meaning" (p. 9). Therefore, it may be argued that for critical thinking to be practiced in a way that supports democracy or strengthens a democratic life as "a mode of associated living, of conjoint communicated experience" (p. 94), it has to be done not only rigorously in the cognitive and intrapersonal dimensions (i.e., as rational thinking or self-examination) but also expressed in an inclusive and nuanced way in the interpersonal dimension (i.e., in relation to the diverse others and their diverse ways of knowing and believing).

[161] See more detailed explication of Dewey's ideas in the literature review and theoretical framework chapters.

(3) Subsection summary

Critical thinking from Claire's perspective can be summarized as a process that utilizes, examines, and improves one's belief system as the evaluative basis upon which judgment and decision-making are formed. To be able to think critically and be open to change as such may be particularly important for individuals in a democratic society or in late modernity, because of the diversity of ideas, people, and encounters that take place through freer associations in the age of information technology and globalization. As mentioned in the findings, the essential quality that makes a thinking "critical thinking" for Claire is that it "must deal with ideas that are inconsistent with one's own." This quotation conveys an awareness of the diverse other and the self's position in the midst of such diversity. Therefore, Claire's case emphasizes critical thinking as a process of refining one's belief system while living along with others and re-grounding/reconstructing oneself in the flux of uncertainties, possibilities, and choices—the abundance of which perhaps characterize the nature of our times in the age of globalization.

Moreover, as the reconstruction of oneself in the midst of diversity and contending possibilities entails understanding and exploring what one genuinely values and believes, one invariably turns inward for answers, such as listening to one's inner voice as a guiding authority. In *Democracy and Education*, Dewey characterized a democratic society as one that "repudiates the principle of external authority" and finds instead "a substitute in voluntary disposition and interest" (p. 94). In light of this characterization of democracy at the macro/societal level, it may be argued that at a micro/individual level, when individuals live an examined life closer to their natural or "voluntary disposition and interest," they are in fact practicing a democratic principle. Moreover, as Dewey further asserted that such disposition and interest "can only be

created by education" (p. 94)—one that fosters "good habits of thinking" as "the method of intelligent learning" and "intelligent experience" (p. X), it may be argued that a person who is capable of listening or registering his or her inner voice is also one who has the abilities to think reflectively or critically in a broad sense. Just as such an inner voice may assert its authority and work complementarily with thinking in important decision-making processes, especially in situations that entail uncertainty and require leaps of faith, cultivated thinking that reflects upon experiences and examines beliefs can also lead to the uncovering and development of one's inner voice.[162]

In Claire's case, for her to live in a more genuine way by the values she truly believed through the process of critical thinking and examination of her original position, she was becoming a democratized individual. Therefore, critical thinking practiced in relation to one's

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[162] Some readers might ask whether listening and following one's own voice in the face of uncertainty constitutes a leap of faith that could in fact put one in danger. While that can happen especially when impulse and desire is conflated with inner voice and when action is carried out without due consideration, listening to one's own voice in the context of decision-making that involves careful or critical thinking means something more specific for the following reasons: (1) one's own voice doesn't always mean "go ahead," it could mean "don't do it" for some knowing that one's conscious mind or rational mind aren't able to pick up quickly—e.g. if we aren't trained to listen to our bodily responses, our decision-making may be overshadowed by the ingrained rationale reasoning or ideology; (2a) if one's own voice says "do it" but the situation reveals somehow that there's potential danger or risk—either through one's own sense (that too became one's own voice) or through others' suggestions, a critical thinker who is sensitive toward inconsistencies/differences would try to address these concerns by thinking a bit more. If after the evaluations of pros and cons, there's still an inner voice that knows one cannot not do it, then one would find ways to ensure the best outcome and minimize risks; (2b) part of being a critical thinker is to live genuinely or actualize who one is (so-called one's destiny/fate—i.e., something that can't be denied or one wouldn't be happy, at least in an environment that is relatively supportive of one's choice and free—the extent of self-actualizing being an issue may be contingent on the type of environment one is in; in a more homogeneous and illiberal environment, individuals may still experience internal regrets but the overwhelming external/social pressure and reward/punishment system may overpower and thus subdue the individual regret to some extent, for it's a social issue and everyone submits so there's not much hope nor individual responsibility to worry about) and thus live with uncertainties and some risks that come along with that identity or individual fate. It's like living a scientific and democratic life at the individual level—one makes the best possible hypothesis possible and try to experiment it—if it still fails, one try to learn from it and improve based on it. It's not foolproof process, but there may also be a lot more danger met and created through so-called rational reasoning that may just be an exercise of some other authority over one's own that end up really hurting oneself by not preserving or actualizing one's "irreplaceable individuality" as Dewey called it.

belief system can be a democratizing, transformative force, promoting a kind of individualization or individualism that is more genuine to oneself (i.e., closer to one's authentic self or "irreplaceable individuality" as Dewey called it) and inclusive of others (i.e., a diversity of different individualities would be recognized and fostered).

IV. THEORIZATION: RECONCEPTUALIZATING CRITICAL THINKING & ITS PEDAGOGY

1. Problematizing Critical Thinking in Higher Education: Local Problem & Global Relevance

In spite of critical thinking being a deeply entrenched concept in American education, both Claire and Jiayi's cases demonstrate a need for higher education to pay closer attention to the type and quality of critical thinking that it is in fact fostering. Such examination of the state of critical thinking education may be especially important, if the goal of critical thinking is to responds to the demands of the global knowledge economy but also the wellbeing of students in the late modern age. From Claire's case, we see additional reasons why higher education needs to take such an introspective look.

One area of possible concern is about the lack of clarity yet overuse of the term "critical thinking." Claire is not alone in her doubts about the actual elements of critical thinking in the SAT Critical Reading Test. Other participants have also expressed similar concerns about the conflated use of the term "critical thinking" for just about any cognitive activity that requires some focused analytical thinking; for such conflation of terms may promote a narrow version of critical thinking and leave students with a skeptical impression about what may be learned from this way of thinking.

Claire's account also indicate a possible decrease in the actual application of critical thinking among college students. The causes for this occurrence may be numerous and different for each individual student; for Claire, for example, it had to do with her particular STEM major, which was highly technical and logical rather than critical from her perspective. In addition, the dwindling usage of critical thinking in college was also associated with her experience of greater homogeneity or similarity among well-informed or well-travelled college students. There may be a steady convergence in terms of educational and cultural exposures for youths like Claire across the globe due to the force of economic globalization and rapid technological advancement in the past few decades. Along with the increase in cultural or ideological homogeneity among college students, there could be a corresponding decrease in value or perspective differences and thus in dissonances necessary or conducive for the development of critical thinking through social and intellectual interactions.

Yet as evidenced in the internal struggles experienced by Claire and Jiayi, actual/significant differences still abound, even though apparent differences may no longer be as obvious among nations and their youths due to the homogenizing effect of globalization. The more subtle and ideological differences below the surface or along the side of similarity and homogeneity may mean that higher education needs to do more through its pedagogy and curriculum to uncover the rich undergirding differences among college students and utilize their diverse experiences and background to stimulate learning from one another. As research in constructive developmental psychology demonstrated, experience of dissonances can play a significant role in spurring intensive or critical thinking (cite, King). Claire's account seems to support this finding, particularly her experience of cognitive and cultural dissonances when she

first arrived in the U.S. for high school and was suddenly exposed to a much greater diversity of people and ideas than she had ever encounter before.[163]

Another area of possible concern higher education may need to reflect on is its actual role and effectiveness in contributing to students' critical thinking development. Claire represents a case where students learned critical thinking mostly through informal means on their own. To a lesser extent, Jiayi's case also demonstrates this phenomenon, as her understanding and appreciation for what critical thinking can do—i.e., in ways that not only benefit them academically but also personally—was largely gained through informal discussion with a friend outside of school. The possibility that students may be learning a great or greater amount of critical thinking through informal means raises questions about the role of formal education in contributing to students' development in this regard. Yet if students often acquire critical thinking largely through informal means and find the teaching and utilization of critical thinking in formal education to be limited or even insufficient, as presented in the cases of Jiayi and Claire, it may be argued that whatever critical thinking capability students have gained over the course of their young adulthood, higher education cannot take much of the credit.

On the one hand, such questioning or reckoning—especially if it is indeed generalizable among other students in this study and beyond—may be poignant for American higher education, for it has frequently portrayed itself as the protector and sponsor of intellectual freedom—of which critical thinking arguably constitutes a significant part/manifestation. Under

[163] Granted, her story highlights not only the importance/benefits of experiencing dissonances but also the necessity of having an effective/apt meaning-making capacity to think and navigate through the challenges such encounters can generate.

the relentless pressure of neoliberal corporatization of universities in recent decades, higher education, especially some less revenue-generating departments like the humanities, may be increasingly pressed to find means to justify their *raison d'être*. And the cultivation of critical thinking seems to have become an obvious justification, for it has been perceived as a highly marketable skill and promoted by corporations and policymakers (Davies & Barnette, 2015).[164] On the other hand, the substantial gap between what universities purport to achieve and what they may actually be doing with regard to critical thinking may also be perceived as an opportunity for American higher education to take a deeper dive into new ways that it can better foster students' critical thinking development or in areas where students would need more of critical thinking for desired outcomes—academic, social, personal, and/or political.

The third area of concern that calls for further consideration is the issue of transferability or applicability of critical thinking across domains and therefore the teaching of it in higher education. Claire's account indicates that a largely discipline-specific and technical type of critical thinking is being currently fostered in higher education, and such critical thinking has limited transferability or usefulness beyond the academic domain. As scholarship or an academic career is not a likely path for most college students, it seems that a more generalizable/flexible form of critical thinking across domains or more varied forms of critical thinking suitable for different domains may need to be cultivated to ensure students' success and wellbeing beyond higher

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[164] There may be an irony here, for the kind of critical thinking skills desired by the business and government sectors interested in global market competition may not necessarily be the same as the kind traditionally advocated by higher education that saw the promotion of intellectual freedom, liberty, and democracy as its core mission. If higher education is not reflective and vigilant about the quality and the type of critical thinking it is fostering, it may not be living up to its ideal as a space transformative and beneficial for individual students and by extension for the society; rather, it may be primarily responding to the demands of the market and perpetuating existing norms that have exacerbated in many ways economic inequality and social divide.

education. This means that critical thinking in higher education would need to be better explored and reconceptualized to an extent, so that related but differentiated pedagogies of critical thinking for different domains—academic, personal, and socio-political— can be developed and put into practice.

In addition, existing transferability of critical thinking as evidenced in Claire's description rests largely at the content/idea level, rather than the structure/skill level which can be more widely applied. That is, certain ideas from academic courses may shed light on the social world, even changing her original perspective; vice versa, some ideas from personal experiences may become evidence for her argument in an academic essay. Based on Claire's reflection, the only exception of transferability or applicability across the domains at the skill or structural level seems to be the systematic approach to inquiry and argument construction fostered in formal education, which entails generalizable elements like clearly-stated definitions, warranted evidence, and well-supported conclusions. This more systematic approach or awareness had a positive impact for Claire, improving her application of critical thinking in the personal domain, such as making more persuasive assertions or identifying areas where communications break down—whether in the area of different definition, evidence, or logic.

It may also be proposed that in terms of transferability of critical thinking, more educational emphasis should be given not only to transferring the more generalizable skills rather than the more context-specific content, but also to transferring between domains rather than from the academic to the personal domain. At least from Claire's frequent practice of critical thinking in the personal domain, structural elements in the application of critical thinking there may also be relevant and beneficial for the academic domain (details of these structural elements

will be explored in the last pedagogical recommendation subsection). Yet the topic of transferability of critical thinking is typically debated among its proponents and educational psychologists with the presumption that it only goes from the academic to the rest—personal or other domains in everyday life.

Furthermore, it may be argued that Claire was able to achieve a kind of inclusivity of contending ideas and use them to improve her own thinking because of a set of equally developed meaning-making dimensions—cognitive, interpersonal, and intrapersonal—that play an essential role in her critical thinking process. Therefore, it may be further argued that for critical thinking to be transferable across domains, it would entail that the functioning of all the three dimensions be transferable or applicable to different domains and contexts or that the contexts themselves are more or less the same. Yet that is not the case, to a varied extent, for each transnational Chinese student in this study.

As both Claire and Jiayi's experiences show, their personal contexts associated with being Chinese were substantially different from the school contexts situated in the U.S, and their personal contexts also varied from one another due to different familial dynamics. And these different contexts can shape the ways they operate intrapersonally, interpersonally, and cognitively, as manifested in their varied practices and development of critical thinking. Jiayi, for example, whose interpersonal dimension is more dependent on external authority and dominant of her intrapersonal dimension, demonstrated weaker and less frequent applications of critical thinking in the personal domain.[165] By contrast, with an intrapersonal dimension that was more

[165] As may be recalled from the previous case, Jiayi had a harder time applying critical thinking in matters of the personal domain, such as decision-making about what to major in and pursue as a career.

independent and less constrained by interpersonal dynamics, Claire was freer and more frequent in her application of critical thinking in the personal domain. It may be thus argued from transnational Chinese students' experiences, that the transferability of critical thinking is less automatic than educational theorists have typically presumed and is also more complex than a matter of mere disposition or willingness for one to apply critical thinking across domains and issues.

Seen from a cross-cultural perspective, the extent to which critical thinking is transferable across domains may also be different among individuals and cultures. For students who reside in socio-political cultures that are generally liberal, the difference between the academic and personal domains may vary less, while for students who traverse liberal and non-liberal spaces, the difference across domains may be more consequential. While the latter case seems to apply for the great majority of transnational Chinese students, it may also be relevant for domestic students in the U.S., particularly for first-generation college students and students coming from relatively conservative and religious communities in the States.

In short, general transferability or applicability of critical thinking is likely to be much more complicated than it had been typically presumed, due to the nature of each domain, of situational context, and of meaning-making structure that vary among individuals as well as cultures. To strengthen the development and practice of critical thinking for a diverse student population, it seems that a lot more work is yet to be done in terms of research and pedagogical improvement for this overused yet underexamined educational concept. And American higher education as the global center for critical thinking can be the ideal place for such research that is locally available yet globally relevant.

2. A Model for Reconceptualizing Critical Thinking with Greater Inclusivity

In spite of the substantial differences in their sense of self and in their practice of critical thinking, Claire and Jiayi seem to converge on a conception of critical thinking as a tool or process for better understanding or truth. While Jiayi wished to be able to synthesize different or contending ideas into a "coherent whole" as part of critical thinking, Claire demonstrated in her own practice how that can be achieved. Her process of synthesis typically started with an actively inquiry into the rationale behind a new idea or practice that was different or even contrary to her own; it would often then be followed by an evaluation of not only the new idea but also, in the reverse order, her original perspective or beliefs that undergirded her evaluation of the new. Through this process, new ideas may be examined along with the old, resulting a kind of amalgamation or synthesis of the new and old[166] that reflects her values and individuality. Claire's thinking can also be described as a two-way process where one both looks at an object and is being looked at from a distance or from the viewpoint of the object; arguably, the result of such thinking is an improved understanding of the other and of oneself.

Juxtaposing the two cases, it may also be seen that while Claire's desire for better understanding was fulfilled by having figured out a kind of critical thinking process on her own, Jiayi's wish for a higher level of critical thinking was yet to be realized. Perhaps educational interventions that offer appropriate guidance on how to think through and with contending ideas may benefit the many students like Jiayi. For students who lack the experience of independent

[166] Sometimes the new may replace the old, other times it may be a partial adoption of the new or a rejection and the new and affirmation of the old.

thinking and inquiry, educational support in these areas may play a pivotal role in developing their ability to encounter different ideas and assumption as something stimulating rather than inhibitive to their optimal growth.

Additional elements for reconceptualizing critical thinking that can be drawn from Claire's case seem to support or run parallel to the three ways that were already mentioned in Jiayi's case. That is, critical thinking for greater inclusivity and benefit for students can be reconceptualized or improved in the following three areas of inclusion: more domains (i.e., beyond the primary academic domain) in which critical thinking may be applied, more dimensions of the meaning-making structure (i.e., beyond the dominant cognitive dimension) within which critical thinking probably operates, and more active consideration of different/contending ideas that critical thinking may in fact depend on. Whether critical thinking functions as an effective tool for logical analysis or for greater understanding of the self and the other, it needs diversity or the other—as we'll continue to see and explore through other participants' experiences—for its operation.

Arguably, these three areas of inclusivity are already manifested in Claire's practice and conception of critical thinking. As we may recall from the findings section, in applying critical thinking in the personal domain, Claire frequently included differences she observed in others as probes for further inquiry and examination of her belief system. The dimensions of meaning-making structure involved in such practice of critical thinking entailed not only the cognitive, but also interpersonal and intrapersonal—i.e., the way she related to the other as potentially connected or relevant entity to herself. Perhaps none of this intersubjectivity or semi-fluid interconnectedness may be sustainable (i.e., without becoming overwhelming to the necessary

identity and independence of the self) without also a strong intrapersonal dimension—i.e., an affirmational and accepting approach to who she was and what her inner voices dictated as an important source of knowing and authority in her decision-making process. Such intrapersonal dimension or sense of self seems to have allowed Claire feel confident in following her inner voice in midst of diverse possibilities and be the ultimate arbiter of contending ideas for herself.

In light of Claire's case, it may be further argued that developing a mature selfhood or meaning-making structure—i.e., that is even somewhat paradoxical—is essential for the optimal functioning and development of critical thinking across domains. For example, as empathy and curiosity seem to expand one's experience and understanding of others through communication and inquiry, one needs in the interpersonal dimension a capacity to see a bit of oneself in others and others in oneself. Moreover, as having a stable sense of self grounded by self-knowledge is indispensable for this interconnected critical thinking, one may need in the intrapersonal dimension an affirmational attitude toward oneself yet also an open attitude toward possible change or revision of one's belief system. Furthermore, as the ultimate goal is not only to analyze but also to reconstruct better understanding and knowledge for action, one would also need in the cognitive dimension both a certain amount of relativist skepticism and truth-seeking drive that allows one to commit in spite of uncertainties. In other words, to think critically as such is to possess a certain type of meaning-making structure, to be a particular kind of person.

3. Correlating Pedagogical Suggestions

Given the aforementioned problematization and reconceptualization of critical thinking in higher education, the following pedagogical recommendations add to those already

mentioned in the previous case. Together, these suggestions propose that higher education to take a more active role in fostering critical thinking that improves students' intellectual, social, and personal growth.

(1) First, greater emphasis on holistic teaching and developing students' meaning-making capacity as the larger structure/context for the optimal function of a more inclusive critical thinking. As explicated in the theoretical framework chapter, research in constructive developmental psychology has found that development in the three dimensions of meaning-making structures—cognitive, intrapersonal and interpersonal—happens in sync (cite). This finding means that no growth in one dimension (e.g., cognitive) can be advanced far without similar growth in the other two dimensions (e.g., intrapersonal and interpersonal). In addition, while (cognitive) dissonance stimulates intellectual and personal growth, it can also inhibit such development when the encountered dissonance is too great or overwhelming for the student to cope. To reach an optimal condition for growth, therefore, the student's capacity to process dissonances would need to be enhanced and/or the level of dissonances needs to be suitably adjusted according to the student's level. Applying this research finding to the current teaching of critical thinking as a primarily cognitive activity means that more educational consideration would need to be given for an equal development in the intrapersonal and interpersonal dimensions that invariably shape the quality of students' critical thinking.

Arguably, the varied forms of critical thinking pedagogy in higher education do contribute to the cultivation of students' meaning-making structures to an extent; however, it can also be argued that formal training of critical thinking, as perhaps most often manifested through undergraduate writing requirements, typically emphasizes the cognitive and intrapersonal

dimensions. For example, in asking students to write a clear thesis statement or argumentative position of their own, the writing requirement is in fact fostering an assertive and affirmational intrapersonal disposition that is also apt at utilizing cognitive prowess to gather supportive evidence and construct a defensible argument in support of one's belief or judgment. Such implicit cultivation of assertiveness, independence, and ownership of one's ideas through a seemingly neutral writing requirement may not seem as obvious and value-free from the perspective of a writing/educational culture (e.g., situated within a larger non-democratic socio-political system) that does not encourage independent thinking and democratic personhood.

While the training for constructing one's point of view (i.e., the cognitive dimension) and strengthening of one's self-assertive or affirmational disposition (i.e., the intrapersonal dimension) are necessary to the development of critical thinking, they are not sufficient. From the theoretical framework of a three-dimensional meaning-making structure in constructive developmental psychology, it is quite clear that the interpersonal dimension or development is often overlooked in academic writing. Granted, the role of an "audience" in writing, for example, may be intended to foster that interpersonal awareness or growth. While an attention to audience is generally noted in academic writing courses, it is often done in a cursory way, in passing to the more central components like thesis statement and its supporting arguments. It is also customarily assumed that the default audience for academic writing is one's instructor—typically, a liberal and open-minded individual who is willing to be persuaded by reason alone, and who is less concerned with what is being said as with how a position is being argued and defended.

Yet this is hardly the attitude most audiences possess outside of academia, as Jiayi and Claire's experiences attest. In other words, in spite of the purported recognition of the role of audience in writing, there is a lack of actual practice in academic writing for different audiences or how that may impact the ways in which ideas need to be constructed and effectively communicated. Perhaps as an unintended result, students are socialized to write without a clear sense of audience or only for one kind—a like-minded audience; gradually, they may be trained to presume that the way they learned to construct and express an idea or position would or should work in all contexts. Of course, students can quickly run up against the limits of writing and thinking habits upon leaving university; they would then feel the sting of not being sufficiently trained and prepared for communicating ideas to different audiences, especially to those who do not readily share the same assumptions and prioritization for rigorous, logical thinking.

To remedy the existing oversight of the interpersonal as an integral dimension for critical thinking development, undergraduate writing can place greater emphasis on assignments that ask students to roleplay as and/or write for different audiences (e.g., those that play significant roles in their daily experiences at school, at home, or in the larger society) and through grading rubrics that include apt use of counterarguments and demonstration of contextual understanding of contending perspectives. Such pedagogical changes may enhance students' awareness of the interpersonal dimension of thinking and writing: How one's ideas may evolve and benefit by considering other viewpoints, and how learning to construct and assert a defensible position of one's own may be the first step rather than the last toward a better understanding of the self and the other.

Writing critically as such would indeed be "more involved"—closer to what some participants like Claire described about the nature of their own critical thinking practices in the personal/everyday life domain. It would entail uncovering and affirming one's own position, constructing an intelligible and warranted argumentation, and communicating it in a way that facilitate understanding from and interchange with others. Greater challenges would invariably emerge from fostering such involved critical thinking and writing, for it would mean that for teachers should guide students not only on how to construct arguments from their own viewpoints but also on how to interact with others and deal with the difficult conceptual differences and messy emotions that can arise from communicating contending ideas and beliefs.

(2) The likely pedagogical challenges for instructors lead to the second point of recommendation: Greater recognition and support for teaching in higher education. To guide students to think critically in an inclusive way, university instructors—i.e., professors and graduate teaching assistants who have thus far been trained almost exclusively for research or the knowledge production within their academic disciplines—would need more pedagogical training on how to foster holistic learning and integrate that into curriculum design, assignments, and classroom activities. This would mean, foremost, institutional support on pedagogical research and even change within the academic hierarchy, where the priority has grant-generating research and publication at the top and teaching and mentoring at the bottom of the list, especially at the competitive universities. As Claire observed, much to her dismay, the university provides almost no incentive for instructors to invest in teaching; therefore, the actual quality of undergraduate teaching from her experience was largely disappointing.

In addition, universities may enhance the teaching of critical thinking by sponsoring active conceptual and pedagogical explorations with instructors on how critical thinking is variedly manifested in their respective disciplines, demonstrated in their teaching, and applied across domains—academic, personal, and civic— in their own experiences. Such discussions or problematization at the university-wide or institutional level may raise awareness of the issues within the existing practices of critical thinking and engage instructors with the reconceptualization and incorporation of a more inclusive and transformative critical thinking into their teaching. Such revamping means not an overhaul of the existing academic disciplines and practices so much as an extension of its teaching to better serve the actual needs of students and their critical thinking development. In practice, it might mean developing differentiated teachings of critical thinking, with a more generalizable/transferable kind at the lower-division/level courses and a more technical/ discipline-specific kind at the upper-division courses—hopefully, with the merits and limitations of each type of critical thinking explained and explored to the extent possible with the students.

(3) Extending from the call for better pedagogical recognition and support for instructors in higher education is the third recommendation: More explicit discussion with students about critical thinking as a tool for problem solving and knowledge construction within academia and beyond. Greater communication as such can facilitate more learning and transferability of critical thinking in both directions—i.e., "between" teachers and students, theories and experiences, the academic and the personal domains, as well as the so-called mind and body. By contrast, typical discussion on transferability among critical thinking theorists and psychologists presumes one direction movement, in the mode of "from" the former "to" the latter—e.g. from the academic

domain to the everyday life or other domains. This recommendation is based on the assumption or view that education as an institution offers more than intellectual/academic training; it also takes interest in nurturing students' holistic development and preparation for a much longer period of life and work beyond graduation. Therefore, perceived as equal importance to academic learning is also learning of a more general kind: how to keep learning outside of classrooms and books, how to think and solve problems across domains, and how to interpret one's experiences and utilize knowledge that can be drawn from them for better decision-making, future experience, and further growth.

The educational value and importance of "experience" is evident in Claire's case, for her largely self-directed decisions or chosen experiences seem to have played a significant role in the robust development of her critical thinking. In many ways, the experiences Claire had echoed Dewey's description of "experience" that has both an active and passive phase that contributed to learning and growth. Many of the new experiences Claire had decided on her own (e.g., quitting a competitive high school in China or studying abroad in the U.S.) can be seen as experiments based on the best decisions or hypotheses she could construct at the time. And once she carried out the decisions and experienced what had been previously unknown, she reflected on the experiences and had a lot of raw material/data to make sense out of.

New experiences led to even more experiences, especially in the U.S. where the larger environment was more open and diverse, leading to an unfolding process of learning. Almost entirely on her own and initially unfamiliar to life and learning abroad, Claire was vigilant about working hard and reflecting her experiences to ensure the best outcome of her decisions. Over time, it seems that her confidence and ability to construct better hypotheses/decisions for better

experiments/experiences also improved. As Claire reflected, when it came to make new decisions and uncertainties in the personal domain, she often relied on tried-and-tested "experiences from actual combats." Drawing upon Dewey's conception of "experience" and "reflective/critical thinking," it may be thus argued that Claire's experiences were in fact processes of critical thinking and meaning-making essential for her wellbeing and development as a self-authoring individual.

Therefore, for higher education to foster critical thinking that is inclusive of students' overall development, more consideration would need to be given to utilize and incorporate students' experiences into the teaching and learning of critical thinking. Students may benefit from pedagogical guidance, for example, on how to apply critical thinking for understanding and directing their experiences, for connecting them with larger issues and theories taught in the courses, and for sharing their unique experiences and perspectives with others for better knowledge construction in a collective sense through classroom discussions. Such educational facilitation on make sense of individual experiences may also help students to better process the dissonances they encounter, uncover the more subtle yet significant differences within a diverse student population in the global age, and conduct engaged conversations that deepen and broaden a sense of connection with one another.

Students may also benefit from conversations on how critical thinking as they use in the personal domain (if any) compare and contrast with varied forms in the academic domain. They may be encouraged to see whether transferability of critical thinking can happen in both directions, rather than just one (i.e., from the academic to the personal domain) that critical thinking theorists typically presume whenever the topic of transferability is debated on; they

might find the benefits of incorporating some aspects of critical thinking practices from different domains to enhance the quality of its application in each domain. As we can draw from Claire's case, some structural elements of critical thinking she used in the personal domain can be applicable and even beneficial for the practice of critical thinking in the academic domain. For example, recognition and examination of one's belief, assumption, and ideology that invariably shape one's critical thinking process and outcome; understanding of the varied contexts and rationales by which knowledge claims or evidence are constructed; consideration of the audience and how varied audiences impact the way in which ideas can be effectively communicated in academia and beyond.

Moreover, we may also recall Claire's inclusion of her heart or inner voice in decision-making processes or application of critical thinking in the personal domain. It may be worth noting that such inclusion of the non-rational did not seem to hinder her developing a strong critical thinking practice; on the contrary, it actually enhanced her decision-making and wellbeing in face of uncertainty and contending options. If the practice of critical thinking in the academic domain can also take more into consideration of the various forms of knowing that also play important roles in our wellbeing and complex problem-solving in everyday life, the function of critical thinking, along its strength and limitation, may become clearer; perhaps more rather than less, a strong form rather than a weaker form of critical thinking may also emerge in students' development and practice.

CONCLUSION

In summary, the two in-depth case analyses demonstrate a similar difference in how the students (i.e., Jiayi and Claire) perceived what critical thinking should be and what they experienced in practice in the academic domain. Even though Jiayi and Claire acquired and practiced critical thinking in somewhat different ways,[167] their accounts suggest a notion of critical thinking that is broader or more inclusive than what they each had learned through formal education. Such inclusivity can be manifested in different ways. For example, Jiayi expressed a vision of critical thinking that is not only about constructing a defensible argument of one's own but also about including and synthesizing different viewpoints for a more comprehensive and coherent understanding of a contested topic or issue. Claire described a concept of critical thinking that does not only consider different viewpoints but also includes a reflective examination of her own belief system by which she evaluates others'. Through these forms of inclusivity, both students also projected a perception of critical thinking as a process for improving one's understanding—about oneself, about the other, and/or about the event or idea under consideration.

The two cases also highlight a possible connection between selfhood and critical thinking development. Juxtaposing the two cases, their opposite senses of the self[168] and the different practices of critical thinking that come to the fore seem to suggest a more closely interconnected relation between selfhood and critical thinking than what is typically stressed in formal education. The contrasts between the cases also seem to suggest that the strength of

[167] i.e., Claire acquired critical thinking largely on her own in the personal domain, before exposure of the concept "critical thinking" in the academic domain; by contrast, even though Jiayi's grasp and appreciation for critical thinking was gained through discussion with a school friend, her conception and practice of critical thinking was more extensively shaped or limited by its usage in the academic domain.

[168] For example, affirmational vs. negational intrapersonal attitude toward their own ideas and preferences, and self-oriented vs. other-oriented interpersonal attitude toward others' opinions and judgments.

one's selfhood may impact the development and expression of one's critical thinking, and vice versa. That is, we saw on the one hand, Claire's consistently affirmational attitude toward her own ideas and choices and her self-assertive attitude toward others, along with a self-directed development of critical thinking that was frequently utilized for problem-solving across domains. On the other hand, we may recall Jiayi's more negational attitude toward her inner voice and her often deferential attitude toward others or external authorities, along with a critical thinking that was largely shaped by and used for writing assignments within the academic domain. It was Claire, more than Jiayi, who was able to improve her understanding and gain better self-knowledge through thinking critically of her experiences and different ideas. Vice versa, with the coordination of a strong selfhood, critical thinking became an effective tool for Claire, helping her to navigate the many "antagonistic pulls" she had faced as a transnational.

By providing detailed portraits of two participants in the study, this chapter offers a holistic picture of how various aspects of students' transnational experiences and their acquisition and application of critical thinking may fit together as a whole. Some aspects (e.g., the learning process of critical thinking via formal vs. informal education) of the students' experiences discussed in these comprehensive accounts may not be explored to the same extent, if at all, in the ensuing chapters, because the focus will shift to cover more cases and for more general pattern findings. Nevertheless, major themes that have emerged in this in-depth analysis chapter—e.g., the connection between selfhood and critical thinking and the varying development of each as manifested in the participants—will continue to be explored in the next two data analysis chapters.

Chapter 6a. GROUP ANALYSIS (I)

I. INTRODUCTION

This chapter of data analysis discusses the conceptions and applications of critical thinking, along with relevant personal experiences and reflection, collected from the 20 participants in this study as a whole. The more sweeping group analysis of all the participants demonstrates a spectrum of critical thinking development that aims to capture the diversity within the research population. The spectrum is divided into three broadly-defined groups, each with a set of shared characteristics derived from the participants' accounts of their experiences abroad and of their perceptions and applications of critical thinking. While the three groups suggest different levels of critical thinking development, the differentiation is based on a set of criteria (explained in the next section) specific to this dissertation.

Due to the length of the group analysis, this chapter is also divided into two parts. Part I or Chapter 5a presents findings and analysis of participants in Group I and III—i.e., students with arguable strongest critical thinking abilities and those with relatively the weakest demonstrations. These two groups were analyzed first to create contrasts between the groups and to highlight the two ends of a spectrum of critical thinking abilities that is found among the participants in this study. Part II or Chapter 5b focuses on Group II, which happens to be the largest group, consisting more than half of the participant pool. Due the size, complexity, and discernable patterns within this large group, it is further divided into four subgroups, each capturing a certain set of characteristics that seem to have shaped their critical thinking development.

II. CRITERIA

The criteria for estimating students' critical thinking draw upon a broad conception of critical thinking I have developed through the review of the literature and knowledge of the studied population. In the academic literature, there is a general assumption among educational theorists that critical thinking is and or should be applicable and transferable across domains—e.g., from knowledge construction in the academic domain to problem-solving in the domain of everyday life. In participants' experiences, the intrapersonal and interpersonal dimensions of their lives abroad often undergo substantial change and development; issues in these dimensions from the domain of everyday life often call upon them to act independently and apply critical thinking to an extent that is often more "involved" than what is required in the academic domain.

In light of the literature and the findings, therefore, it would make sense to evaluate each participant's critical thinking broadly: not only the comprehensiveness of his/her conception and application of critical thinking in the academic domain, but also its manifestation in the personal/everyday life domain and even other domains, such as the sociopolitical domain, when applicable. The basic criteria used to evaluate these students' critical thinking consist of the following categories:

(1) Level of thoroughness in articulating or demonstrating a conception of critical thinking (e.g., additional insights into the nature and function of critical thinking may suggest a more advanced level of conception).

(2) Level of application of critical thinking across domains (e.g., higher frequency of application across domains may indicate more advanced critical thinking development).

The criteria were formulated iteratively as I was organizing the data in Excel, which lent itself naturally to a vertical placement of the participants' data. The idea of arranging the data along a spectrum of critical thinking development came to the fore, and it quickly turned out to be a promising way to analyze the rest of the data and locate possible patterns. For example, by establishing participants' relative positions on the critical thinking spectrum (from less to more developed), it became easier to see how the various factors—e.g., socio-economic background, priority educational background, gender, or academic major—might have impacted these students' critical thinking development. I will provide a detailed description of data patterns vis-à-vis critical thinking in the next chapter.

III. GROUP I

Students in Group I typically demonstrate comprehensive understanding and frequent application of critical thinking across domains—i.e., for academic learning, in everyday life, and on larger social/sociopolitical issues. It may be surprising that the Group I students also exhibited a strong sense of self or selfhood, which included self-knowledge, self-confidence or independence, and substantial exploration of the internal dimension of their beings. In addition, along with the substantial development of the self, their narratives also demonstrated a dimension of knowing that was outside of the rational within which critical thinking has typically been thought to operate. This non-rational dimension beyond "conscious reasoning" was mentioned variously by participants as "inner voice," "intuition," "feeling" (particularly empathy), "spirituality," and "religious faith."

Drawing upon the accounts of four students within this group, the following analysis explores in greater detail the connections among the above components; namely, *how the non-rational and a sense of selfhood contributed to these students' critical thinking development on the one hand, and how their critical thinking also benefited the growth of their non-rational dimension and inner core on the other hand*. The discussion includes six subsections in total: the first four subsections analyze the central characteristics of this group and the connections among the various components—i.e., (1) conception of critical thinking, (2) its applications across domains, (3) selfhood, and (4) the non-rational dimension; the last two subsections entail the following: (5) a partial anomaly case, and (6) group conclusion.

1. Conception of Critical Thinking

Recall Claire from the previous in-depth case analysis chapter; she is one of the students in this first group. With the exception of one student Dio (which will be explained later in subsection 5), most of the students in this group demonstrated a comprehensive understanding of critical thinking that also contained additional elements or insights that moved beyond how this concept has been typically perceived. For example, Claire offered unifying insight into the often disparate elements that are typically associated with critical thinking, such as logical thinking, evaluating the pros and cons, and seeing things from different perspectives. Her conception, as quoted in the previous chapter, asserted that these are elements within a "whole" process of critical thinking that begins with one's existing belief system for evaluating a proposed solution or alternative, and that ends with reflection of one's belief system and/or initial position on an issue in light of different ideas and evidence that have been considered along the way.

Claire's conception of critical thinking contains not only elements typically described/prescribed by contemporary theorists but also additional insights of her own. Those insights, coincidently, echo some of the essential functions of critical thinking envisioned by Socrates and Dewey: Such as the use of critical thinking for examining one's beliefs on how best to live one's life (as described by Socrates) and for communicating with others in a way that expands the self, improves experiences, and increases connection with others (as perceived by Dewey about the essence of democracy at the individual and social level).

Although expressed differently, other students in this group also demonstrated a similarly comprehensive understanding of critical thinking that contained insights beyond how critical thinking has typically been perceived and practiced. For example, Audrey, a social science student who also developed critical thinking early (i.e., first exposure in middle school and later more extensive cultivation in high school at an elite international boarding school in China), provided the following description of critical thinking:

> Evaluate an issue from different perspectives, not only a good or bad binary, but be willing to explore any possible in between. Be open-minded about a different narrative and prepare to gather various information from different sources to formulate your own opinions, which again can have multiple layers and standpoints. Not simply experience things but constantly think how we can improve.

Audrey's definition above demonstrates a number of elements that have been prescribed by theorists as critical thinking dispositions and skills, such as open-mindedness, seeking alternatives, using varied evidence, generating an argumentative position, and sensitivity to contexts. In addition, her definition also conveys additional elements that are not typically highlighted, such as a suggestive sense of epistemic and/or moral complexity beyond "a good or

bad binary" that may be entailed in the process of critical thinking and an explicitly stated purpose of critical thinking for improving "experience[s]."

In contrast to the dominant concept of critical thinking grounded on informal logic, Audrey's conception conveys a broader interest of its use beyond arguments or knowledge claims in the academic domain. For her, as for Claire, the importance of critical thinking seemed to be particularly prominent in the personal domain. Her use of critical thinking to improve experience echo Dewey's conception of critical thinking or reflective thinking as an integral part of how we should ideally have experiences—as cycles of active and passive phases where we act upon the world and reflect on the consequences in order for better understanding and engagement moving forward.

In another example, Tim, a STEM student with a social science minor, described critical thinking as something that emerged from contrary views:

> Whenever we write a paper in these courses [i.e., the social sciences], we need to use critical thinking, cite references. In such instances, a topic or issue is typically approached from different perspectives. Often times when I write about my side or position, I also consider the other side. Through the other, I gain perspectives of seeing things from contrary directions, and that is perhaps the foundation of critical thinking. If one doesn't see both [i.e., different] sides but merely one's own, that's not critical thinking; the resulting paper would be skewed toward logic.

As in Audrey's conception of critical thinking, Tim's description above also covers a comprehensive amount of elements that are typically associated with critical thinking in academic writing., such as an argumentative position of one's own or thesis statement, logical structure or flow, and warranted supporting evidence. In addition, echoing Claire's earlier assertion that logical thinking is not critical thinking but a mere aspect of it, Tim makes an explicit distinction about a piece of writing that is merely logical vs. critical. This distinction contrasts

sharply, as discussed in the literature review, with the way in which critical thinking has often been conceptualized in education policy and curriculum that typically adopt the informal logic approach and thus conflate, to various extent, logic with critical thinking.

Along with this subtle but significant differentiation between logic and critical thinking, moreover, is a further insight into how critical thinking operates in general and in writing specifically. That is, the standard structural and qualitative elements stressed in academic writing—e.g., thesis statement and supporting arguments with warranted evidence, cogently weaved together with sound logic—are the end product of a process. And the process is, however, likely to be more complex. According to Tim, the thinking process undergirding the writing should ideally aim not only for a justified assertion of one's own but also, if not more importantly, for the improvement of one's original position. Such improved or evolved understanding is achieved by considering broadly and fairly, to the extent possible, different perspectives and available evidence.

While extensive consideration of counterarguments or counterevidence is considered challenging and not often emphasized in undergraduate writing,[169] Tim seemed to relish this more advanced aspect of critical writing or thinking that expanded and deepened his view. To write or think as such bears substantial resemblance to Dewey's description of the iterative process of hypothesis construction within reflective/critical thinking, as discussed earlier in the literature review. It may be further argued, therefore, for critical thinking to be demonstrated, as it often does, as a vindication or persuasive proof of one's position, it should be grounded on

[169] The lack of requirement for careful consideration of counterarguments or counterevidence is evidenced in many participant's reflection of critical thinking for academic writing, as well as in my own experience as an undergraduate and later as a graduate instructor of undergraduate courses.

an enriching process—i.e., a process that includes the other and that improves one's understanding of oneself and the world.

2. Application of Critical Thinking

The strength of critical thinking demonstrated by students in this group resides not only in their explicitly articulated conceptions but also in their application. Audrey's following account of how often she applied critical thinking also shows how widely she applied it across domains:

> I rely on it every day for my research, projects, at work and even completing quotidian tasks in life, from improving the taste of a dish to troubleshooting a disfunctioning bike. I have gained additional insight and knowledge from seeking more than one right answers to life.

The quotation suggests that critical thinking has become an integral part of the self for Audrey, as she was applying it with ease and confidence. In addition, her comment about "rely[ing] on" critical thinking, along with her other descriptions about "relying primarily on [her]self for decision-makings," also seem to present critical thinking as a handy and essential tool for her to navigate the world as an independent individual.

Likewise, the following quotation from Tim also demonstrates an extensive use of critical thinking across domains for various issues he experienced as a transnational:

> Before I came to the U.S., I thought many things in China were not working well—pollution, intense competition—and I thought things would be much better by coming to the States. I was comparing the [better] environment in the U.S. with the polluted environment in China, so the weakness on the Chinese side was obvious. However, after I came to the States and realized that things are not quite what I had thought and there are many problems, I thought that the U.S. isn't good but China is. To think in this way was like a tree without roots, blown to and fro easily by a gust of wind, unable to take root, unable to find one's own way. But after learning to think critically, I can see things more rationally: China and the U.S. each has strengths and issues…. This is why critical thinking can be used everywhere.

The quotation above indicates Tim's application of critical thinking in the sociopolitical domain, on issues concerning China and the U.S. as two dynamically different countries that may, however, share increasingly more similarities in the global age. While applying critical thinking in the personal domain was prevalent among participants, it was less common in the sociopolitical domain. Sociopolitical issues, particularly pertaining to China, seemed to be a less familiar and/or comfortable subject for Chinese students in general, as evidenced by the cautious or circumspect way in which some responded to questions of this domain in the interviews. Students like Tim in Group I, however, seemed to possess a greater amount of openness and confidence in presenting their positions and understanding of controversies in this more macro-level domain.

Closely connected to the sociopolitical is a prevalent issue in the personal domain that concerned many transnational Chinese student—i.e., the decision to stay abroad or return to China. In a similar vein, Tim also leaned on critical thinking to help him process the contending options and opinions around this topic:

> Take another example, the issue of whether one should stay or return back to China after graduation. Previously, I thought that returning is not a good idea, for it would mean that you don't have the capability to survive and stay in the U.S [a popular perception at the time]….Yet after thinking it through critically, I realized that there are students who have outstanding abilities but have chosen to return. Without critical thinking, without the willingness to read and do research…one [might] simply follow along what everyone else seems to think is 'right'… as if one has no roots of one's own.

The quotation mentions a number of critical elements that seem to be transferable or applicable across the domains in Tim's practice. For example, researching different evidence and points of view on a subject matter of academic or personal importance; comparing or evaluating different options in the personal domain or claims in academic domain; constructing a coherent

interpretation of one's own that can have consequences on one's grade or life trajectory. As in his previous description of critical thinking in academic writing, Tim's applications in the sociopolitical and personal domains presents a vision of critical thinking as an enabler of a more nuanced and balanced understanding beyond how things may appear at first to him or interpreted by popular norms.

3. Selfhood

Also noteworthy in the above two quotations is the striking metaphor Tim uses repeatedly to describe his previous self and those who do not possess critical thinking but habitually follow opinions dictated by others—i.e., as a tree "unable to take root, unable to find one's own way." The imagery of a rootless tree that bends easily under external pressure or influence suggests an intimate link between critical thinking and selfhood. That is, on the one hand, critical thinking can strengthen self-development, like a force or method enabling a tree to take root; on the other hand, incorporation of the self or self-understanding is necessary in the critical thinking process. In the following interactive interview segment, Tim further explicated his thought process on the postgraduate decision and described the interconnectedness between critical thinking and selfhood:

> Critical thinking is not only about seeing both sides, but also about considering one's own. It's a bit like the relationship between three points: If there are two paths [or sides to an issue], one has to incorporate oneself. Or there may be many paths, as in the case of Chinese students abroad; we may have many more choices than domestic students, even though it may not appear that way…. All of this [numerous considerations within the decision of staying or returning] entails critical thinking, because there are lots of ifs and suppositions to consider. If I had stayed in China all along, I would have had less options for the general direction, just like having only half of the tree trunk—needless to say about the fewer smaller branches. But as a student abroad, I would first of all have the options of staying in the U.S. or going back to China, each of which can be further divided into

finder considerations and choices.... Once we know how to think critically, we can think through all the possible paths, compare them, and then make a decision. Even though I did not make a conscious effort to think in this way, my mind automatically thought it through like this.

> [HX/author: As critical thinking helps with the branching off of the tree or treetop] Right, [in order to stabilize it, the roots would have to] grow deeper; [then does critical thinking impact the tree roots as well?] I think critical thinking does have an effect on the roots; this is why I said earlier that if the roots are not deep enough, it would be blown down by a gust of wind. Perhaps by "roots" as mentioned earlier, I was referring to critical thinking—for the more one thinks critically, the deeper one's thoughts grow. Let's suppose I want to verify that I want to go back to China, that it's a good option for me. First, I would choose this side, but before that I would compare it with the American side [option to stay in the U.S.], then next...every question is a result of this continuous branching out. Without a very strong foundation, the rest of growth would be just vexing worries or confusion.

> [HX: How is the foundation being built?] I think this foundation is [built on] one's experience or self, [pause] or perhaps the many [forms of] knowledge one has and personality. This is why in critical thinking, you would always have to come up with your own conclusion. The rest is just arguments, but the undergirding root is my topic or conclusion. [HX: The roots seem to include many elements; can it be said that critical thinking channel the roots and the whole tree?] Critical thinking is the whole thing, the tree itself is a [manifestation] of critical thinking.

By "foundation," which seems to be used interchangeably with "roots," Tim meant components such as "one's experience, knowledge, and personal characteristics" that constitute what is more common referred to as the "self" or "selfhood."[170] In much of the quotations above, Tim describes the role of critical thinking in his development as an individual: i.e., in enabling him to better evaluate options, make decisions, and grow along "a path that is right for [him]self." While there might be some ambiguities[171] in the way Tim uses the metaphor of a tree to describe a

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[170] "Self" and "selfhood" are related and overlapping terms. While "selfhood" is defined in dictionary (Oxford Languages) as "the state of having an individual identity" that distinguish one from others, "self" highlights the individual person as "an object of introspection and reflexive action." Depending on the specific context in the dissertation, I may use "selfhood" or "self" and sometimes interchangeably so.

[171] For example, in the second of the quoted interview exchange where I asked Tim about effect of critical thinking on the "roots": While Tim responded that critical thinking would making one's thoughts grow deeper, suggesting perhaps the image of a tree taking roots and strengthening its foundation, the ensuing example Tim provided within

person's growth, unambiguous is the message about the function of critical thinking in the growth of a person as a tree. That is, critical thinking as an analytical, problem-solving approach can improve the upward growth of the treetop that expands the visible exterior of the tree, representing the outward manifestations (e.g. decisions, actions, and accomplishments) of a person in life. In addition, critical thinking as a reflection of one's foundation—i.e., personal traits, experiences, and knowledge—can also strengthen the downward growth of the less visible tree roots, symbolizing internal knowledge of the self and commitment to one's individuality that is vital for the stability and flourishing of the person. In short, seen from Tim's perspective, critical thinking facilitates the external and internal flourishing of the whole person, like the visible treetop and invisible roots of a tree, as illustrated in the picture below:[172]

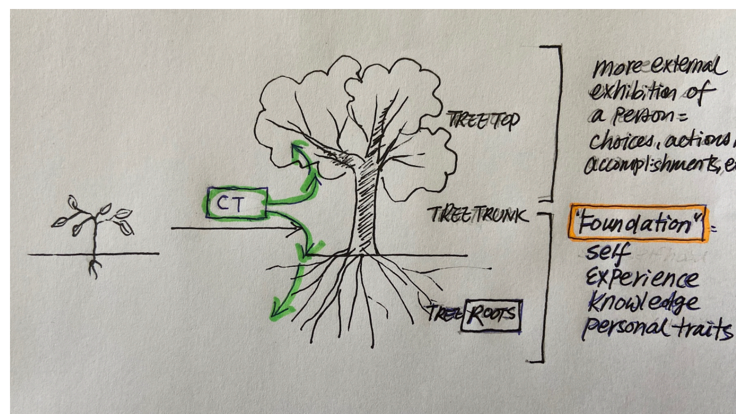

Figure 2. Critical Thinking as a holistic force for Tim's internal and external growth

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that quotation seems to actually describe how critical thinking can help with one's decision-makings or branching out at the tree top. Tim shifted attention from describing the tree top to tree root or "foundation" in the third quotation when I asked him again, albeit differently, about the tree root or foundation.

[172] There are some ambiguities in the analogy, due to its spontaneous and interactive or co-constructive nature of the conversation in which the analogy was discussed. Tim did not describe the tree in explicit segments as drawn in the picture, though the idea of an "branching-off" treetop representing individual choices and development and conceptions of "tree-roots" or "foundation" were explicitly mentioned by him. The idea of "tree-trunk," or "foundation" entailing more than just the invisible tree-roots or internal aspects of a person but also reflection of one's experiences/interactions with the world, emerged when I tried to put the analogy on the paper.

At the same time, Tim also expressed, in the beginning of the quotation group, the indispensable role of the self in the critical thinking process. That is, to think critically of the different options or sides and to conclude with a position of one's own, the self—whether it is one's own experience, knowledge, needs, or situation—always has to be incorporated into consideration. Knowledge of the self and recognition of such knowledge is then foundational to one's ability to integrate the self or subjective component into the rational process of critical thinking. In other words, critical thinking as such generates not a purely objective position or evaluation of different claims in the abstract; rather, it brings forth a committed position or conclusion that reflects the extant evidence and subjectivity or "foundation" of the thinker—both of which may continue to evolve. Critical thinking can be seen, therefore, as a tool for finding stability or a path of one's own (necessary for wellbeing) in midst of shifting changes and contending possibilities (constant in life itself). Yet it can also be seen from Tim's account that, without a strong foundation or sense of self, one would not be sufficiently grounded and able to think critically. One would struggle in frustration, as evidenced in the in-depth case of Jiayi, with the responsibility to decide for oneself while being easily swayed by external opinions.

In short, Tim's reflections suggest that while critical thinking can strengthen self-development, incorporation of the self or self-understanding is necessary for the process of critical thinking. Without critical thinking, the self may not grow optimally along one's own path but "do things blindly—merely following what others say is 'good';" or vice versa, without incorporating the self, critical thinking as a tool may be underutilized, as it has often been, for a narrower set of purposes. As reflected in Tim's summary later, "critical thinking entails the whole

thing—the tree itself is a [manifestation] of critical thinking," the two components—selfhood and critical thinking—need one another to realize the potential power within each.

4. Non-rational Dimension

While the strength of students in Group I may also be expressed in their confident independence and in their concomitant maturation of the self and critical thinking, the study also finds a robust presence of the non-rational dimension that played a vital role in both their strong sense of self and critical thinking. In Claire's case, for example, the non-rational dimension manifested in this way: in spite of her rigorous conception and application of critical thinking, the place for the heart or her inner voice was never replaced but respected in her decision-making. According to Claire, this recognition of the heart came after much doubting and questioning that eventually led, however, "to the same conclusion or recognition of its irreplaceable importance. In other words, Claire's application of critical thinking, especially in the personal domain, entailed a balance of rational reasoning processes and non-rational knowing. Moreover, this balance that checked the use of rational or logical reasoning within a limit, while allowing the heart to shape her decision-making, seemed to serve Claire well in overall development and wellbeing.

In Audrey's case, the non-rational dimension is manifested in what she variously called "feeling," "emotion," "intuition," and a sense that "deeply, I know the solution." Similar to her conception of critical thinking discussed earlier, the following quotation from Audrey in the initial online questionnaire demonstrates a rigorous and methodical approach to how she would think through the decision of choosing an academic major:

> [This] is a general model for problem solving: a. identify the problem: parents believing art history is not practical, probably as a career. b. Gather adequate info: research into

> the job perspectives. c. Formulate an argument backed up by the evidence: summarize pros and cons. d. Propose a conclusion and solution accordingly: communication. The outcome often comes as uncertain due to many factors, mostly financial when it comes to the concern for practicality. She should think through the risks of not being able to obtain a job/ cost of living abroad and evaluate the consequences and judge whether she can her parents can afford the risk….Whether one identifies with the ideology here is also important. For instance, I find great gender inequality in the Chinese society and as a female, I am less willing to return to China to face invalid discrimination at work or cultural homogeneity.

Her account also contains a number of essential critical thinking elements, as represented in the critical thinking list: e.g., being systematic, thorough, informed, and logical. Therefore, it may be argued that Audrey had a certain confidence or competency in using a rational, critical thinking approach to help her solve complex issues in everyday life that entail uncertainty, contextual constrains, and contending voices or needs. There seems to be a sense of trust that through this rigorous and methodical thinking process, uncertainties can be minimized and solutions can be forged with evaluated risks. The mention of ideology and value as an important factor for consideration seems to further suggest a more advanced epistemic and sociopolitical awareness of the constructed nature of the various domains—i.e., that they should be examined, critiqued, and reconstructed or chosen as one's own.

Yet in the interviews, particularly the second one, Audrey described herself as a "feeling dominated" person. Moreover, she seemed to cherish this aspect of herself as a prominent personal characteristic—supported by a personality test that she had found useful for further self-understanding. Through deeper explorations of her familial background and extracurricular interests, this non-rational dimension seemed to have been carefully cultivated by her mother and further refined by herself through reading and writing poetry:

> It was mainly the influence of my mom…she read a lot of poems, and she trained me to memorize one poem per day during the summer…. We don't talk much at home, but

> when we talk, mostly about how are you doing at school. My mom was like I notice recently you are getting a little cranky, so reflect upon it. They don't really point things to me, but when we talk, we talk a lot about emotional side, trying to achieve this inner peace.…Yeah, really appreciate them sort of inspire me to discover how important spiritual tranquility is.

Not included in this quotation are references to books on Zen Buddhism and exposure to traditional Chinese culture and philosophy, such as Taoism, which were introduced by her mother as well. In other words, even though Audrey was not affiliated with a particular religious practice, she clearly valued spirituality, intuition, and sentiments—as an inner, non-rational dimension of knowing and responding to the world.

The impact of this inner dimension is not only manifested in her selfhood—e.g., her sense of personal identity and attributes—but also in her understanding and application of critical thinking. For example, responding to the critical thinking list,[173] she commented the following: "This is very thinking oriented—[representing] a lot of things I do, [but] more often when I write papers. When I'm actually engaged in debate with people, I don't necessarily do them as much, because I am more [attuned] to a person's emotional response." Noticeably, Audrey's emphasis here on the inclusion of the non-rational component in her practice of critical thinking draws a stark contrast with the structured, analytical approach presented in her "general model for problem-solving," as quoted earlier.

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[173] As mentioned in the Method Chapter, the critical thinking list is a compilation of various critical thinking abilities/skills and dispositions based on the work (2015) of Robert Ennis, who has been a major authority in the critical thinking movement. The list contains 15 critical thinking abilities and dispositions represent most of the critical thinking elements that may be commonly agreed upon by critical thinking theorists, particularly of the prevailing informal logic approach. The list was given at the end of the second interview to the participants for self-evaluation: They responded by selecting items that they use most frequently (to highlight in green), less frequently (in yellow), and not at all (in red). Due to the preliminary nature of this cognitive task and time constrain, I would have a brief conversation with them on their self-evaluation, focusing on reasons for items that they do not use frequently or not at all.

Her own explanation is that on matters entailing human livelihood and experience, relying on the rational along may not be sufficient for problem-solving:[174]

> I feel like a lot of the real world problems, you can't think purely theoretically and [logically] at the data, because it involves human beings and they are so complex, for instance the issue of refugee and immigration camps, the problem of 10 millions of people taking up resources, they are also individuals they just lost their families, they're struggling to survive and can't feed themselves. I feel having the capacity to empathize, to think on different scale, will help you establishing another perspective. But that's the thing about complicating the problem, I think another dimension is that it complicates the problem, so it's not an easy or direct solution…

This quotation seems to suggest that what Audrey mentioned earlier as "feeling" and "emotion response" can be connected to "empathy"—a quality also mentioned by Claire and Tim as a recognizable development in them while studying abroad. We may recall from the literature review chapter, while feminist scholars of critical thinking have been strong proponents of these qualities, such as "empathy" and "care," traditional theorists like Ennis have been reluctant to place such attributes as a key component or disposition of critical thinking. By contrast, echoing the feminist voice within the critical thinking movement, Audrey's account highlights empathy as an essential element in a "more humane" approach of critical thinking for problem-solving.

[174] There could be numerous reasons why the emotion/non-rational dimension was not articulated in Audrey's earlier quotation on how to think through one's decision-making on academic major. Sometimes, due to the informal nature of the online questionnaire and research interview, the lack of explicit description of something by the participant does not mean that it is not part of their operation in practice. It is often the case, for example, that to grasp their full conception of critical thinking, both explicit description of what it is and how it is being used in application need to be considered. On this particular instance about what to major—a decision that is often challenging for transnational Chinese students and that can arouse strong emotions of joy and/or confusion, Audrey's apparent coolness might have stemmed partially from the relative ease in which the decision was for her. Having gone to an international/British boarding school in China, she was able to explore and solidify her interest early on. In addition, there was no conflict between her interest and practical consideration, as it could be the case for students who are interested in the less "practical" majors in the arts and humanities. As Audrey commented that choosing her major was " a simple option," since "it offers a more pragmatic job perspective" and she already had a foundation for it by having taken a broad range of different social science courses in high school.

While stressing on the importance of this non-rational dimension to the thinking process, Audrey recognized its potential complication and tension with the prevailing practice of critical thinking that highlights efficiency:

> So if you apply it critically by adding another dimension of the feeling—but alternatively, one could argue that you're not being efficient. Or I guess what the utilitarians would say: you have to focus on the result, you have to be result-oriented; either way, it's going to sacrifice something, you have to find the way that sacrifices the least. That's why I can't, yeah, there're different problems that you can apply critical thinking; [so it] also depends on the problem.

Audrey's implicit defense or assertion to this dominant thinking or challenge, as can be gathered from the quotation, seems to be that different problems warrant different variations of critical thinking. While some issues may be applied, in theory, by critical thinking that is "purely based on data and arguments," other issues concerning human livelihood in the real world may need to be approached more empathetically and inclusively—i.e., by a critical thinking that utilizes the non-rational dimension and stands outside of its current drive for data and efficiency. Interestingly, this more complex and differentiated approach to applying critical thinking in the everyday life domain was variedly expressed by Claire, Tim, and other participants in this study.

In addition, Audrey was also cognizant of an arguably more significant challenge that this non-rational dimension of emotion/feeling can pose: i.e., its potential in "undermin[ing] your rational" or ability to maintain an open-minded criticality. She shared the following candid observation of herself:

> I am very feeling dominated; so if the data presented contradicts to what I believe, I can get really defensive about my values and what I believe in…. I try to be more objective about things, but I do have a strong sense of values—believing what is moral to do and what is not. But sometimes, like this society is very complicated, the black and white is not exactly well-defined, so it [paused briefly with a demure laughter] can be hard sometimes.

This quotation demonstrates that like Claire, Audrey was also wrestling with defining values of her own in a globalized world, where guiding values essential for everyday life have become more contested, fluid, and individualized. Different from Claire who examined but retained much of her earlier values, however, Audrey reported a more "complete" change while abroad. As she hung out with mostly non-Chinese friends in college, she also came to embrace individual freedom, social equality, and other liberal values and politics espoused in American higher education. While the feeling of empathy does not necessarily equate to liberal values, it is arguably a foundational element that have given rise to such values, and Audrey seemed to associate them together as she accounted her defensiveness whenever data and/or arguments challenged these values or this feeling. Perhaps this association with feeling of empathy contributed to the relative absence of examination or openness Audrey mentioned about her newly adopted values, even though, like others, she too highlighted the importance in critically examining mainstream values.

At the same time, it may also be argued that Audrey's very awareness of her own defensive reaction is a promising sign that she may still be finding her way to commit to cherished values without losing her criticality. In other words, while it can be challenging to have the rational and the non-rational dimensions—both of which were exhibited strongly by Audrey—the tension between the contending forces of knowing can be a creative source, helping her to eventually forge a more integrated, balanced, and powerful approach for understanding and problem-solving. Arguably, Audrey's ability to sustain and utilize this dynamic tension within would be a key to her further development towards a model that integrates both dimensions. In light of Claire's case and Tim's as will be discussed more in the following, it is possible that Audrey

may develop a more solid belief or value system that is also open to examination and counterarguments. Such examined beliefs or values can be the basis of a more inclusive, human-centered critical thinking that Audrey can practice with greater confidence.

Whereas the non-rational dimension was articulated by Audrey and Claire in more fluid and somewhat interchangeable terms—e.g., "inner voice," "intuition," "feeling," or "emotion," it was described by Tim with great clarity as religious faith. As a devout Christian, this religious dimension played a pivotal role in changing his selfhood and the way he interpreted his experiences:

> There has been a qualitative change within me: Whereas I would totally depend on myself for things before—feeling that 'I can do it, can do it, can do it'—I now depend more on God. When I encountered difficulties before, I would think about all the possible ways to resolve them on my own; if I couldn't, I would be worried and anxious. I don't feel the same way now, because [I believe] everything is [or happens for] the best…. For example, I've chosen to take 7 courses this quarter. In the last two weeks, I got so exhausted that I felt like I was going insane. If I followed my original way of thinking, I'd think what I did was very wrong—I should not have taken so many courses in my last quarter. If I were my old self, I would complain and have lots of negative thoughts, etc. However, I now think that since I've already made the choice, God has his will and good purpose. Perhaps I would also reflect, why did I choose 7 courses? I'd see that perhaps it was because I took 6 in the previous quarter, and I was able to handle them fairly successfully. So I was a bit too proud of myself and became a little vain and greedy [about what more I can do], among other reasons. I would reflect; but after reflection, I will pray and entrust [it to God]. I wouldn't worry about the rest, for I believe God will still set my path straight.[175] My path may deviate a bit here or there, but perhaps on this roundabout path, I am still going straight. I used to think from my subjective perspective, yet humans can only see this far. While we can't even envision events in the next second, God can see your whole life's path; so I don't [stress by Tim] worry anymore.

[175] Direct quotation from the Bible (Proverbs 3: 5-6) that parallels Tim's description of his religious faith and trust in his path guided by God: "Trust in the Lord with all your heart and lean not on your own understanding; in all your ways submit to him, and he will make your paths straight."

Tim became a Christian around the time he was also exposed to critical thinking—i.e., after he dropped out of high school in China[176] for a better prospect of higher education abroad. Tim's original dream consisted of "what most people want": a reputable education and a desirable job that would provide both financial security and social status. However, during his time in the U.S., Tim encountered a number of adversities and precarious adventures that eventually brought him close to the Christian faith. Subsequently, while Tim was pursuing a STEM major—as part of his initial "American dream," he realized that he was called to pursue a subfield of education and to help empower those who have been particularly disadvantaged and misunderstood in China. As Tim described it, "I think this [Christian faith] is the most important factor [that] totally changed my thinking or changed my life."

In addition to changing the way he defined "good life," Tim's faith also affected the way he related to himself, as demonstrated in the long quotation. That is, instead of relying on himself, which would be typical of late-modern individuals often disembeded from religious or cultural traditions,[177] Tim leaned on the non-rational/more traditional dimension for the kind of strength and tranquility that his other dedicated efforts and abilities, including critical thinking, were not able to generate. Furthermore, it can also be seen from the quotation that this non-rational dimension contributed to an epistemic shift within Tim as well, expanding his way of thinking beyond the binaries. Instead of judging things habitually in terms of right or wrong, his

[176] Tim dropped out of the Chinese education system in high school and came to the U.S., after realizing that his educational prospect and chance for getting into one of his dream universities in China would be impossibly slim. This is largely because even though Tim and his parents had been living in the city for many years, where his family had established a successful business and owned properties, they still held the rural or outside residency permit. As a result, Tim, like many other migrant students from the countryside today, could not have access to the same educational resource and opportunities as regular residents or students in the city.

[177] The conditions of late-modern life and what it means for the individual are discussed in greater detail in the theoretical framework, using sociologists Anthony Giddens and Ulrich Beck analyses.

religious faith provided him with some space or a broader view that perhaps things may not be how they appear to him at the moment. In other words, contained within his trust in God or something greater than himself, there was an epistemic recognition for Tim that one's knowledge or ability to know can often be limited; many unknown variables in the present could later change the nature or outcome of things. And this shift in religious faith seemed to contribute to a greater epistemic flexibility in the way Tim interpreted the world and considered what is right for oneself.

Interestingly, a similar sense of epistemic flexibility can be seen in the following description by Tim on the purpose of critical thinking—i.e., part of which being it enables people to examine normative habits and gain greater freedom to choose one's own path:

> [With critical thinking,] one can accept things more easily. One won't so habitually impose one's own ideas of what is right on others. Critical thinking helps one to consider the path that is right for oneself. As for what is the right path, it varies among individuals. What is a successful or happy life? It's hard to say. Generally, people see the successful ones—[e.g.,] the ultrarich or the famous scientist—as models of success and [judge] everything else lesser than as unsuccessful. Without critical thinking, one would also see it this way: this means success, that doesn't. Perhaps critical thinking is about when one chooses one path, one doesn't negate the other. It's about this is what is it that I want or right for me, which doesn't negate everything else as wrong.

Tim's descriptions of the effects of critical thinking in this quotation echo his earlier reflection about how his religious faith had shaped him. For example, in the intrapersonal domain, both dimensions—i.e., if we can call critical thinking as a rational dimension and religious faith as a non-rational dimension—seemed to have enabled Tim to think beyond binaries, seek a path of his own, and be more accepting or kinder to himself. Consequently, the intrapersonal also affected the interpersonal: According to Tim, as one becomes more flexible epistemologically, one would also have more space for others to be as well. Had we not known the what Tim also said about the importance of his religious faith, the quotation would have suggested that it was

critical thinking alone that had contributed to Tim's significant epistemic, intrapersonal and interpersonal changes.

Notice also that in the last part of the quotation, Tim looped back to his conception of critical thinking—i.e., one that consistently highlights the place of other in one's thinking. More specifically, critical thinking as such would help one to find and commit to a position or decision of one's own; at the same time, it would also consider the other and "allow the other to be"—as postmodern/feminist theorists of critical thinking have been advocating (see details in the literature review chapter). And such conception or ideal of critical thinking, at least in Tim's case, seem to share significant similarities in purpose and effect as with his religious faith: In providing people with the resource to step away from the norms, in supporting them to choose their own paths, and thus in enabling them to better accept the different other.

In other words, the changed attitude toward life, himself, and others seemed to be a result of a confluence of effect from both critical thinking and religious faith in Tim's case. Whereas we typically situate the rational in opposition to or separation from the non-rational, the two dimensions in Tim seemed to co-exist in an integrated and perhaps mutually enhancing way for one another. When I asked him the explain explicitly the relationship between critical thinking and religious faith in his practice, Tim first enumerated instances where critical thinking was routinely applied in the religious domain, helping him to establish a firmer sense of trust for something that is not always visible or verifiable by immediate experience and senses:

> Critical thinking would prompt me to reflect on religion—its ideas and teaching. It's because from a common sense perspective, religion is also educating and transmitting many ideas about what is right or wrong. When I am reflecting on these matters, it's an application of critical thinking. I would question them [religious dogmas], asking what are they actually saying…. For before I believed in God, it was impossible to believe in things like Jesus is my savior and that he is the son of God. [But] isn't he also a human being? I

> haven't seen it with my own eyes, so how is possible to believe in that. So from a simplified ideal perspective, I would [keep questioning or doubting]. However, after I had some experience or communion with God—and only after that, I realized that this is real and that my life was already turning. I could see an obvious difference, which further confirmed for me that God is right.

Once Tim saw and accepted religious truth, the strengthened faith or non-rational dimension did impact the frequency in which he applied critical thinking in the religious domain. Such reduction of critical thinking, according to Tim, was not so much out of incompatibility between the two dimensions or a sense of defensiveness of his religious beliefs against rational thinking, as was out of tried-and-tested experience and confidence:

> I still question some of the religious dogma, but overall it [religious faith] has reduced the level of this kind of critical thinking [application]. I used to question 100%, but now it's no longer the case that I want to question the Bible; rather, there are still things I haven't experienced, which I don't really want to question them or try to refute things that are already in the Bible. This is because I think religion is too vast; [albeit,] there are parts like interpretations of the Bible—what people understand of God—that I would definitely think over, because these are not completely coming from God. It's as if, how should I put it, once you have this concept of critical thinking, it's constant. It will always be there, though [the extent of its application] will depend on what is being considered. Perhaps it's always there in a subconscious way, but depending on what the object and its varied content, some aspects of critical thinking may be applied. Or it can be said that because I have thought of it [religious dogmas] critically so many times that there is no point to do so anymore.[178]

In other words, from Tim's perspective, having questioned or thought critically religious dogmas "so many times, there [was] no point to do so anymore." Recall that Claire described a similar process of persistent questioning or critical thinking for verification of the trustworthiness of the non-rational domain. Claire was not religious but followed her heart or inner voice, which was

[178] Perhaps that is still arguable—whether there could be enough critical inquiry into a religious belief that it would no longer be necessary. This is because different religion and individual practice of a religion may exhibit different openness and support for continuous critical inquiry. For example, Medieval Christian scholars were also philosophers who aimed to provide rational justification for their religious beliefs. Another example, Buddhism or some schools within it are notable for its complex logic and advocation of critical inquiry as a key to wisdom.

another type of powerful force that can also guide one to unconventional choices beyond rational comprehension. While reserving space for the authority of the heart, Claire was able to use the rational as a helpful tool for testing or better ascertaining the strong yet nebulous inner voice that emerges from the subconscious level. Both cases seem to suggest that though critical thinking can question and thus challenge the non-rational dimension, the examining process can also be used in a way that strengthen it—be in the form of religious faith or inner voice, allowing the non-rational to be better trusted and thus utilized in the way one perceives the world and make choices.

In spite of the strong influence of religious faith in his life and thinking, the impact his religious faith on critical thinking was not apparent to Tim at first. After several rounds of consideration, he described the following:

> Let me think. Perhaps it can be said that some religious knowledge has provided me more option to think critically. For example, in the past, I would do critical thinking like most people—based on things we knew, while aiming to think about an issue outside of the box. If I hadn't been exposed to religion, like most people who haven't come to accept it, I wouldn't have had the resource to further my independent thinking.

Tim's reflection seems to suggest that the addition of the non-rational dimension to the rational can provide certain epistemic independence that can further one's ability to think critically. While there can be tension between the two dimensions (as more prominently exhibited in Audrey's case), Tim's case indicates that critical thinking and the non-rational religious faith, intuition, or feeling can indeed strengthen the usefulness of both dimensions for better understanding, decision-making, and problem-solving. Moreover, given the confluence of the two dimensions, it may be said that the earlier imagery of the tree can be understood in a slightly different way. That is, the full flourishing of the tree depends not only on the selfhood (one's experiences,

knowledge, personal characteristics, etc.) and ability to think and make choices critically—as previously stated, but also on the non-rational dimension that can strengthen critical thinking, one's sense of self, and thus the development of the individual or "tree" as a whole.

5. An Anomaly Case

While most of the Group I students displayed a robust conception and application of critical thinking, strong sense of self, and utilization of the non-rational dimension, Dio was an anomaly in that she did not articulate a clear conception of critical thinking nor did she consider it to be as important as others in this group. While she did demonstrate a strong practice of critical thinking, it was perceived by her as merely one way of knowing that she leaned on for understanding and interacting with the world, but by no means the most powerful or intriguing one. In addition, Dio's self-understanding, alternative rationality, and non-rational dimension deserve some additional consideration. Even though these components are not typically associated with critical thinking, in Dio's case they seem to have substantially contributed to her critical thinking development and ability to observe and reflect critically on critical thinking itself.

5a. Conception of Critical Thinking

In a way, the lack of clear understanding about critical thinking may, in fact, not be so unusual even among students with strong critical thinking skills. Recall Claire's initial response to the concept of critical thinking as described in the in-depth case chapter: she too claimed that she had a vague and even confused understanding of what it was. This confusion emerged largely because Claire gained much of her understanding of critical thinking from her own practice in the

personal domain, which differed from what she later gathered in the academic domain. Like Claire, Dio also developed aspects of critical thinking on her own before hearing about the concept much later in English; therefore, a similar sense of confusion could have emerged for Dio as well, due to the differences or mismatch between the critical thinking that is acquired more broadly through informal means in the personal domain and that is learned more specifically via formal education in the academic domain.

However, unlike Claire who was able to articulate a sophisticated conception of critical thinking of her own in a later interview, Dio's self-proclaimed ambiguity about the concept persisted throughout the study. For example, in the initial online questionnaire, Dio wrote the following about her lack of clarity about what critical thinking was and its significance:

> Don't know what it means exactly. I guess logical reasoning, supporting your claims with evidence. I hope to get an introduction on what critical thinking is during the interview qwq. If critical thinking is logic, supporting claims with evidence, then I think it's not very important to me. This is because I lean on intuition and feelings a lot. If critical thinking means independent thinking, then I've always thought independently. I think everyone's capabilities are different, so critical thinking may not be important for everyone. For example, I bet Van Gogh didn't think critically (even though his didn't live well). By contrast, Picasso lived a much better life than Van Gogh, but that's because he knew how to sell himself—but that's probably not because of critical thinking, right?

Despite her professed ignorance about the concept, Dio's reflection above indicates a basic understanding of key elements of critical thinking as typically emphasized in higher education: e.g., independent thinking, logical reasoning, argumentative claims, and supporting evidence. In addition, the quotation demonstrates a candid and nuanced evaluation Dio had of this deeply entrenched notion in American education, raising questions about the value of its logical emphasis, universal applicability, and practical significance for individual well-being that have been largely taken for granted or neglected.

Later in the first interview, Dio elaborated on her critical thinking learning experience in college, highlighting a lack of clear instruction in formal education that was consistent in other participants' experiences as well:

> I don't know what critical thinking is. Even though I've often heard of this word being used repeatedly, I don't know what it means exactly. I've heard it in all kinds of contexts, as it's been particularly emphasized in this country [U.S.]. I think the rough idea is to think carefully, but I am not quite sure.

Echoing the account of many other participants, the most extensive explanation of critical thinking Dio received was from a required undergraduate writing course. Yet the actual explanation of critical thinking was still vague—i.e., being equated with another largely unexplained concept, "deeper analysis." Through the actual writing assignments and practices, however, Dio was able to gather implicitly elements that were expected of a critical writing, such "all your claims must be based on evidence, and you must have your own point of view."

By the second interview, after she had evaluated her own thinking practice with reference to the critical thinking list[179] and recognized the importance of the items listed, Dio still expressed reservation about the clarity of the concept:

> Actually, I think every one of these items [critical thinking abilities and dispositions] is very important…. I would definitely use them in academic settings, because it's required that we use citations [etc.]….. [However,] I still don't particularly understand what critical thinking is; I just thought of it as thinking—[i.e.,] thinking that is a bit more in-depth and applicable for any situation [while going through the list]. *[HX: If this list can be said to capture the elements of CT, does that provide you with a clearer understanding of what it is?]* Let me see [long pause, going back to reread the list]. I would say kind of; it's alright[speaking slowly and hesitantly], not very clear, but alright.

[179] Adapted from Robert Ennis' (2016) list of critical thinking dispositions and abilities/skills; see appendix for detailed explanation on the adapted list that I asked participants to respond during the second interview.

Although Dio was not able to pinpoint exactly what was missing for her during the interview, her persistent hesitancy in accepting the prevailing conception of critical thinking as presented in the list or from what she could gather from the writing course seems to suggest something important. That is, in light of the thoroughness in which she often thought and her interest in what she called " the more profound" and "complete knowledge," her reservation seemed to suggest an implicit understanding or vision about what a well-articulated concept of such purported importance should entail. Perhaps a clear presentation or grasp of critical thinking should include an explanation of its deeper purpose—i.e., beyond its operational or structural elements (e.g., thesis, supporting arguments, logic, and evidence); however, as feminist and postmodern theorists have critiqued (see details in the literature review chapter), such discussion on the purpose of critical thinking has been missing in the dominant logic-centered approach to critical thinking.

In the following subsections, further exploration of Dio's application of critical thinking, selfhood, and non-rational dimension may reveal the actual strength of her ability to think critically and her reflection or critique of critical thinking that extended beyond its discussions in the academic literature.

5b. Applications of Critical Thinking

For example, the actual demonstrations of critical thinking in Dio's general learning processes and decision-makings were abundant. The following reflection on classroom discussion—a salient feature of American higher education—demonstrates a number of key critical thinking dispositions Dio possessed:

> I like to share perspectives. I would be willing to listen to a thousand, just to not miss out on one insightful point of view. So typically in a course, in spite of all the discussions, most students do not t have much to add; however, I still think the discussion format itself is pretty useful, because you never know when someone would say something incredible. If it's not taught pedagogically in this way, you'd end up always hearing the professor's perspective; however, if you use this approach, perhaps one day you'd hear a different perspective.

The quotation above demonstrates Dio's intellectual curiosity and open-mindedness for multiple perspectives that are essential for critical thinking. Her dedication to hearing new perspectives that might stimulate her thinking suggests an intense curiosity that was outstanding relative to many other participants in the study.

The extent to which Dio carefully and actively considered the quality of information or knowledge she chose to absorb is also notable, as evidenced in the quotation below:

> I would take every aspect of an issue and its background—everything I can think of—into consideration, before making a final decision…. For example, I might want to see a film about the 1930s-1940s—let's say it's a historical documentary that claims to be an accurate reiteration of the actual events, based on extensive research by numerous historians. But I may not let myself see it, even though I may really want to. Why wouldn't I see it? It's because I think I don't know the historical background of that period well enough. I would wonder about the consequences of seeing a documentary that contains inaccurate information. So what would I do [if I were to see it]? I would read the entire five-thousand-years of history to get a comprehensive understanding and then carefully research that particular period, before watching the film.

The above description of how Dio approached a topic of interest indicates an additional set of critical thinking skills and dispositions, such as the abilities and propensities to be skeptical or raise questions, to keep oneself well informed, to consider background knowledge and context, to seek accuracy to the extent possible, and pay attention to the quality of evidence. And these critical thinking qualities certainly seemed to generate practical benefits, helping her to adjust cross-culturally. For example, unlike some students who felt disappointed by the actual realities they experienced in the U.S.—i.e., often a far cry from the attractive portrayals presented in

traditional Hollywood films that they were exposed to, Dio said that because of her carefully or critically selected knowledge sources, she felt well-adjusted abroad and was not surprised by the new things she encountered, in spite of obvious differences between the environment in the U.S. and her upbringing in China.

While the above two instances evidence Dio's application of critical thinking in the academic/intellectual domain, a similarly thoughtful approach can also be seen in her problem-solving or decision-makings in what she felt to be the "more complex" everyday life domain. For example, like most students in Group I, Dio also went through a significant change in her academic major and career choice, when she realized that the initial path which she had prepared for years did not actually represent her genuine interest or the way she wanted to live her life. Suddenly directionless as a result, Dio felt quite lost for a while; however, she soon turned it into an opportunity for extensive exploration of questions that she had never thought about before until this point:

> But it wasn't around this specific question—what's my next step [i.e., academic major]—but overall contemplation of life…. I was exploring what is life? What kind of life do I want to have? What kind of person do I want to be? How can I reach a balance between career and family? And even about the universe [laugh].

Unlike Jiayi—the first case in the in-depth case chapter—who felt overwhelmed by these larger, existential questions and chose to largely avoid them, Dio said that the year-long search and reflection provided her with "many wonderful experiences," in spite of significant drop in her GPA during that time period. In the later sections on her selfhood and non-rational dimension, I will explain in greater detail on how this exploration broadened her sense of the world, strengthened her self-understanding, and furthered her critical thinking development. It may

suffice to say for now that the openness and extent to which Dio conducted her inquiry indicates intellectual courage and thoroughness that are important for a critical thinker.

Once she found, by chance, a career option that interested her, Dio investigated and considered it fully in the following way. First, she gathered extensive information through various sources, demonstrating independent, knowledge-based inquiry skills: "I searched it online—English and Chinese sites, and I also consulted with the department advisor; but mainly, I researched it on my own." Second, because of the educational subfield of her interest was still nascent in China (to where she intended to return and stay), Dio made careful observation and evaluation, drawing upon knowledge from college courses, to help her understand the background context of its rise in the U.S. and predict its future as a global trend:

> While there are many [such] schools in the U.S., almost no one has gone to a school of this level in China. Even if there are some [in China], the education offered isn't systematic.... I took an economics course on social improvement, where I learned that there are certain states [in the U.S.] that offer [such school programs] to all residents, though such states are few; there are also [some such] programs helping the low-income families, but these are not numerous either. Nevertheless, there is a trend for this, from none to some; and this trend will probably take place in China....

Third, once Dio felt confident that the work of interest promised a "rising career" with a "relatively large market," she asked herself: "given the trend I've already predicted, what should I do?" Knowing that she wanted to make "a lot money" and a flexible job that would allow her time for family and work on her strengthens—e.g., abilities to understand and lead others, Dio soon realized that she wanted to be an educational entrepreneur and open her own school. In other words, in the decision-making process, Dio not only kept herself well-informed of the field of interest and its future potential but also incorporated knowledge of her own needs and what she called candidly "self-interest."

Fourth, having considered "clearly all the pros and cons" of the option and her own situation and feeling that she could commit herself to this career path, Dio thought methodically about the specifics for the kind of school she would build—e.g., its targeted population, any practical constrains, and an adopted educational approach could effectively ensure both quality and room for innovation. Lastly, having considered the matter thoroughly and forged a detailed plan for execution, Dio acted on it with persistence and concentration. The intensity of her focus was evident in her later dedication to learn about the educational subfield and excel in the profession—i.e., things that went beyond her initial financial consideration or self-interest; it was also demonstrated in the following quotation on her motivation for participating in the research study:

> As mentioned, I want to start my own school, for which I would need collaborators. And because you [the researcher] are in education, I just thought that I could use this opportunity to promote myself a little—who knows, I might end up meeting a collaborator or something. Wanting to understand other students' experiences [via this dissertation study] is only a surface reason; what I have just explained is a much deeper reason—it's as if I am working on this thing every day, and this [research participation] just seems to be a slightly more likely opportunity.

It may be summarized that from Dio's decision-making process above, her critical thinking is manifested as dispositions of openness and thoroughness *and* as skills for gathering different sources and perspectives, for making logical inference or prediction based on past and present knowledge, and for staying focused to actualize a plan—similar to presenting a well-supported and cogent argument. At the same time, as Dio asserted that the applications of critical thinking in the "more complex" everyday life domain would differ—in spite of critical thinking being "an overall, general ability" applicable across domains, her critical thinking for personal decision-making also demonstrates additional elements not typically prescribed by critical thinking

theorists or utilized in higher education. For example, the incorporation of self-knowledge and level of existential/philosophical questions she asked stemming from a rather specific issue about the new major she should choose suggests a complex interconnectedness among various dimensions—e.g., the practical, the intrapersonal, and the metaphysical—that are generally entailed within everyday life problems but not often dealt with comprehensively in the academic domain.

In short, even though Dio may not think she had a clear understanding of critical thinking nor agreed with prevailing conception of critical thinking taught in formal education, her approach to decision-making or problem-solving across domains suggests strong critical thinking dispositions and skills and sophisticated/differentiated applications across domains.

5c. Selfhood

As can be seen from the above descriptions of her applications of critical thinking in the everyday life domain, Dio had a strong understanding of herself which played an important role in her decision-making processes. She perceived herself to be someone who is "both firmly committed and curiously open to new things"—i.e. always needing a general sense of direction of her own by which she channels her subsequent actions, and always interested in acquiring knowledge upon which she makes her decisions or acquire a sense of direction. She also saw herself as both "idealistic and practical"—i.e., in the sense that she believed in following one's natural interest, while recognizing that normative constrains are always there "pressuring you" and that establishing financial security is also important in life. Dio was even aware of how fortunate she was for having these balanced attributes and for having things she wanted to

pursue "typically aligned with those accepted in the society." As such, it had been much easier for her to find satisfying solutions in life.

Like other students in Group I, Dio also demonstrated an engaged interest in understanding the self which led to her robust self-understanding. In Dio's case in particular, the interest in analyzing herself started early and grew along with a broader interest in knowing about the other and the world, as evidenced in the following quotation:

> Two things I like to do most then [since middle school or earlier], as I still do now, are character analysis—I like to analyze all kinds of people, including those around me, and of course, myself most of all[180]—and social sciences or understanding of the society in general. I was rather young and carefree then, so I was merely analyzing that [fictional] world; now I no longer analyze that world but have begun to analyze this [real] world.

It may be important to note that the confident grasp Dio demonstrated throughout the interviews of who she was and how she wished to operate within her environment stemmed from this early interest in knowing about herself and others as almost objects of interest that call for observations and exploration.

While this interest felt "innate" for Dio, it also appeared to have been nurtured substantially, albeit subconsciously, through her immersion into the world of *Naruto*—a Japanese anime that was popular in China at the time. Even though the intense test-oriented Chinese educational system did not typically permit much freedom for students to pursue extracurricular activities, as Dio also observed, it did not constrain or "affect [her] much." This is because she excelled in school without apparent effort and had, therefore, "plenty of time to play"—including watching the very long anime. Gradually, this carefree childhood hobby in observing and

[180] Elsewhere in the interview, Dio said it more clearly: "Analyzing myself, figuring out who I am, is something that I've liked doing since I was young."

dissecting the characters and societies within the fictional world contributed, in important ways, to her self-understanding and critical thinking development.

For instance, she recognized that while many of her peers also watched the anime, they exhibited interests for different aspects of anime. While for most it would be the characters or story plots, for Dio it was more of the complex worldview and sociopolitical structures within the anime that resonated with her the most. Consequently, she gained an inner awareness about her own disposition for the "profound"—i.e., insights into the nature of things:

> Perhaps it's innate— I've always like things that are a bit more profound. When I was still quite young, I liked a very long anime called *Naruto*, where there were many characters. As a 7th grader, I thoroughly enjoyed watching it. Once I saw a character who was rather mysterious and said something to his brother that I thought it over carefully many times and kept in my memory: "People live their lives bound by their knowledge and cognition, and they call this kind of knowledge/cognition 'reality.' Yet perhaps reality is only a mirage. What you see may not be true; don't you think so?"[181] This statement left a deep impression on me…it's the kind of things I like since young. I must be the only person around me who reads philosophy.

As Dio added later that even though the fictional world was much less complex than the real world, things she enjoyed reflecting upon via the anime "must have had a huge impact on me, becoming my [long-term] interest." This interest entailed analyzing characters and societies; gradually it evolved to understanding things that were less concrete but more metaphysical—as to be detailed in the next section on her exploration of fortune-telling.

Interestingly, the experience of engaging with the anime and pursuing her natural interest not only enhanced her self-understanding but also contributed to her critical thinking

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[181] My translation is based on Dio's memory of the quotation from *Naruto* in Chinese; there are slightly different versions of this quotation appearing in Chinese websites. In addition, there is a popular and consistent English translation online (perhaps from the Japanese original) that reads slightly differently but conveys the same overall message: "People live their lives bound by what they accept as correct and true. That's how they define Reality. But what does it mean to be "correct" or "true"? Merely vague concepts… Their Reality may all be a mirage. Can we consider them to simply be living in their own world, shaped by their beliefs?"

development. This is because as an extension of her interest in the complex characterization and sociopolitical structure within the story, she also followed closely a Chinese online discussion forum on *Naruto*, which offered Dio a platform for deeper analysis of the characters and social structures within the story. The forum became as much of an interest to her, if not more, as the anime itself, offering not only a diverse array of interpretations and perspectives but also an opportunity to formulate her claim to an audience:

> If a particular event that can be said to have intensified this [i.e., her disposition for actively searching for diverse viewpoints], it would be when I was rather young and ignorant, I posted something online. And because my post wasn't well-thought-out, it was rebuked. I was only twelve or thirteen, and the other [the person who rebuked her] was eighteen or nineteen; so, of course, he/she knew more than I did. Then I realized that I shouldn't have said things when I only knew little; I should know everything [i.e., thoroughly about a topic] before speaking out. If there's any external influence, this would be the only incident that had some impact on the way I thought. I can't think of anything from my family or school that had any influence on me [i.e., vis-à-vis interest in knowing things comprehensively]; the online community had a larger impact on me. The effect wasn't that I was, therefore, scared of posting—of course I was a bit upset by it; rather, it prompted me to find out more before posting.

Dio's description of her experience at the online forum indicates an informal means that powerfully shaped her intellectual development, prompting her to desire greater knowledge and giving her an idea on how to better present her own point of view—i.e., that it should be based on substantial knowledge or evidence.

It can be thus argued that while there was a lack of sharing diverse viewpoints and opportunities for discussion in her formal education, Dio had plenty of these elements outside of school—thanks to virtual learning or the internet. It was through this online, she strengthened numerous dispositions and skills that are key to critical thinking: E.g., keeping oneself well-informed, using warranted evidence to support one's claims, curiosity and openness to different perspectives, and offering careful reasoning. Granted, not everyone who had the online platform

was able to pick up these elements for critical thinking development in the same way that Dio did. Therefore, it may be argued that it was a combination of her own nature (e.g. her natural disposition or curiosity for both breadth and depth of knowledge) and nurture (e.g. fortuitous conditions and events) contributed to her critical thinking development through informal means. By the time we met for the interviews (almost a decade later), these critical thinking elements seemed to have already become a second nature to her. And this internalized familiarity with critical thinking may explain, at least in part, why Dio did not find academic writing in the U.S. to be difficult, even though such forms of critical writing or thinking were not espoused in her formal education in China.

It may be further argued that Dio's early exposure to philosophical insights and interest in understanding the deeper nature of things could have also contributed to her reservation about what critical thinking is, which persisted even after reviewing the list of the commonly recognized critical dispositions and skills. That is, in highlighting primarily the technical aspects of critical thinking, the list—drawn heavily on informal logic—did not provide apparent insights into the nature or purpose of critical thinking; as a result, it appeared to be indistinguishable for Dio from thinking in general that was done with more care and thoroughness. In other words, Dio may be just more astute in observing the ambiguity within the prevailing conception and practice of "critical thinking" in higher education. One may also wonder, the difference it could make in Dio's critical thinking development, had the nature or purpose of critical thinking—such as explicated from its Socratic origin, for example—been more readily available for explanation and exploration. She might realize that the very profound insight from *Naruto* that had attracted her young mind (i.e., on the unexamined beliefs that bound people in their lives and ground their

reality) is very much the basis from which the Socratic method, or arguably earliest form of critical thinking in Western philosophy, had emerged and aimed to address.[182] Such realization of the connection between the two sources might have enhanced Dio's recognition of the meaning and significance of critical thinking, furthering her understanding and practice of it as well.

5d. Alternative Rationality & Non-Rational Dimension

Dio's engagement with understanding herself and others grew further in college, especially when she, like many other transnational Chinese students in this study, realized that the academic or career aspiration she had been pursuing all along might not have reflected her genuine interest or wish for herself. The realization led to an intense confusion for Dio: "I felt really lost… it's as if what was ahead of me was completely obscure, as if I didn't know anything." At the same time, the sense of chaos and urgency to find a new direction soon led her to a "very wonderful and intriguing" exploration:

> But it wasn't around this specific question—what's my next step [i.e. finding a new academic major]—but an overall contemplation of life. I was following a Chinese fortune teller on WeChat and got to know many people's lives, from the famous to ordinary people. I was wondering [while exploring]: *What is the meaning of life? What kind of life do I want to live? What kind of person do I want to be? How can I reach a balance between starting up a business and family life?* I even thought about bigger questions, like the universe [laugh].

Even though Dio had before analyzed others (e.g. characters and societies) in the fictional world of *Naruto* and gained knowledge about herself through the process, the stake with redirecting

[182] Shaking up unexamined beliefs is the very origin of critical thinking as Socrates practiced it or as Plato portrayed of Socrates. In the cave analogy in Plato's *Republic*, for example, Socrates described people as shackled since birth in a cave and took shadow images created by fire as reality. This Socratic imagery convey the very idea of human illusion and need for truth that was at least partially expressed in the *Naruto* quotation that Dio was fond of.

her own academic/career trajectory in college felt much higher, with real life consequences. In other words, in a more intensive way, she had to figure out who she was (as a character) and the world—economic, sociopolitical, and even metaphysical—within which she must operate.

Adept at uncovering wider resources online, Dio soon found herself immersed in the world of Chinese fortune telling that was not mainstream or well-known to people around her:

> Many things helped me at the time, and this [fortune telling] was one of them. So how did it help me? It's that through the 'eight character' used in fortune telling,[183] you can pretty much see a person's whole life…. If you have the skill, you can calculate from the eight words many things; for example, the kind of person you are: your personality, your relationships with your spouse, children, parents, friends, etc.—whether any of these would be auspicious or inauspicious for you.... Every person's eight words are like condensed codes about this person's life; so by seeing many sets of these eight words, it's as if you see many people's life stories.

Perhaps not unlike how *Naruto* was for her when she was younger, fortune telling (particularly via a fortune teller's online posts) provided Dio with a platform by which she learned about the

[183] "Eight characters" (八字) is an astrological concept and technique of Chinese fortune telling or "fate calculating" (算命), in which a person's fate or destiny (命) is divined or calculated by looking up the eight characters from the sexagenary cycle that indicate his/her birth hour, day, month, year. In addition, the 10-year luck cycle (十年大运) is considered along with the eight characters, in order to determine a more complete picture of a person's personal traits, relationships, health, career, and periods of fortune or misfortune, etc. There are many other techniques of Chinese fortune telling, but "eight characters" is considered to be the most accessible and popular.

The sexagenary cycle, also known as "heavenly stem and earthly branch" (天干地支), is a traditional Chinese calendric apparatus for recording time. It appears in oracle bones or earliest Chinese written records from the Shang Dynasty, more than 3000 years ago. The cyclic calendar prescribes a cycle of sixty years, months, days, and double hours (e.g. 1-3pm). Each year, month, day, and double hour are given two Chinese characters: One drawn from a cycle of ten Heavenly Stems, and another from the twelve Earthly Branches. Therefore, a person's birth hour, day, month, and year generate a total of eight characters.

The amount of control one has over one's destiny or fate as divined by "eight characters" or other forms of fortune-telling is controvertible. While some practitioners and believers may insist that human fate is predetermined, others may argue that human agency and contexts can play role in altering one's natal fate. Similar debates on the predictability of fate are replete in the larger field of astrology, which has existed across cultures for a long time. In the West, astrology was considered a scholarly study, closely related to astronomy, meteorology, and medicine, etc. Its popular declined with the rise and adoption of the scientific method since the Enlightenment period.

lives of many characters—except this time, they were real people in real life. And the stories played an important role in her decision-making process, as evident in the following quotation:

> These stories left a deep impression on me, or more precisely, they became the background by which I eventually made the decision about what I want to do. So with regard to my decision-making about the path I want to take, it actually has nothing to do with fortune telling. What I was considering was everyone's story, and the fortune telling was only a channel by which I got to know about these stories. You can even completely eliminate the 'eight character' part; it was as if through a special channel, I got to know the life stories of many people. As for the channel, its' like you can watch many stories about lawsuits by tuning into the legal channel; isn't it.

Dio's account above seems to suggest that while the rationality of fortune telling[184] itself may differ from scientific thinking that has been dominating the modern era or our current world, the way in which she used this alternative rationality or way of understanding the world exhibits numerous elements of scientific rationality or critical thinking as typically conceived.

More specifically, in using fortune telling as a as a "channel" for gathering a large amount of stories for her decision-making, Dio was approaching the issue of finding one's career/life path like a researcher who is thorough at gathering information and collecting data. In addition, by

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[184] It may be important to note that while fortune-telling, along with the larger field of astrology, has remained popular in some parts of the world, its legitimacy has been largely challenged in the modern era dominated by scientific thinking from the west. Philosophers and scientists in the 20th century have generally discredited astrology as a "pseudoscience," arguing that astrological concepts and process are not sufficiently empirical or open to revision in the way that the scientific method prescribes (Kuhn, 1972). Yet from the perspective of its practitioners or believers like Dio, the techniques of fortune-telling, such as the "eight characters" is "completely objective," meaning that as long as the birth time is provided accurately, the calculation of one's fate and luck through the elaborate system of "eight words" would be the same, regardless who does the calculation. In other words, even if this form of reasoning or knowing the world is not rational in the scientific sense, it has, nevertheless, its own objectivity, logic, and thus rationality. It may also be valuable, though perhaps limited as well, as an elaborate conceptual or interpretive system that brings the empirical and the metaphysical together, helping to solve or alleviate human dilemmas and existential challenges in ways that is beyond the mechanical plane or scientific boundary. Therefore, if rationality can be conceived more broadly—i.e., beyond the prevailing form prescribed by scientific thinking that focuses primarily on the empirical (what is observable and measurable), then the more traditional ways of knowing, as embodied in Chinese fortune-telling or astrology, might be offering a more diverse array of possible/alternative rationalities.

habitually generating as an accurate or complete understanding as possible based on the "background" data collected, Dio demonstrated careful thinking and attention to knowledge and evidence essential for a critical thinker. Furthermore, as she constantly reflected back to her central question—*who am I* or "am I like this too?"—while reading the stories and evaluated the choices and consequences experienced by the characters, Dio exhibited other critical thinking abilities: e.g., stay focused on the topic of inquiry, open to diverse viewpoints, and consider alternatives or hypothetical scenarios. In other words, beyond the surface of exploring the lives of others through the fortune telling platform is Dio's application of strong critical thinking in figuring out her own direction—one that aligned with both her sense of self and the larger world as can be observed through others' stories.

At the same time, even though fortune telling as an alternative rationality may not have impacted the way Dio approached decision-makings—which consistently demonstrated elements of critical thinking, as a believer of fortune-telling, its underlying concept of natal fate or destiny that varies among individuals seemed to have provided Dio a meaning-making framework by which she interpreted herself and the world around her. For example, Dio described herself as an intuitive thinker, who often resorted to her intuition as a way of knowing: "in everyday life, I would use more of my intuition [as oppose to critical thinking], for example, for discerning people…and then see whether actual events or evidence back up the intuition or not." On the one hand, the confidence Dio exhibited about her non-rational way of knowing was grounded on some empirical basis, as she proclaimed that her initial intuition or intuitive discernment of people has almost always proven to be right by later evidence. On the other hand, Dio's confidence in her intuition seemed to have gained further support from the

knowledge of herself via Chinese fortune-telling or Western astrological practices (e.g. horoscope), as evidenced in the following quotation:

> It can be seen more easily from the horoscope that most of the stars within my zodiac sign fall into the water orientation [element],[185] indicating that, therefore, I am an intuitive thinker; people with extreme water orientation like me are quite rare.

With the support of an elaborate, alternative way of seeing the world through astrology, it seemed likely that Dio gained a firmer sense of herself as an intuitive knower; and this knowledge of herself helped further developing her non-rational dimension, as she exercised her intuition confidently as simply "another way of knowing/thinking."

In addition to making a difference on her self-perception and epistemology, the metaphysical view embodied in astrology also seemed to shape the way Dio perceived others and responded to them, as demonstrated in the following quotation:

> Everyone's fate is different: Some are lucky, some are not. For example, if a person naturally likes music but doesn't have much talent for it, then he/she isn't so lucky. Suppose I meet someone who loves the arts but isn't talented in it; meanwhile, she is actually really good in math. It's not that there shouldn't be any change, but it's hard to know how to change. It would depend on my relationship with that person. If we are just friends, I wouldn't know what to say. Because the dilemma is obvious: She likes what she is not t good at, and she is good at what she doesn't really care for…. If I were in the same situation as this friend, I would also feel very torn in this situation, not knowing what to do. Perhaps I can only give her a hug; I wouldn't know what else to do.

It may be argued that the undergirding astrological concept of natal fate supported Dio to be more affirmative toward not only who she was but also of others—for who they were. In addition, in seeing people (including herself) as individuals with varied natural traits that are recognized or rewarded different in society, Dio demonstrated "feeling of sadness" and empathy

[185] "Water element/sign" is one of the four astrological elements in horoscope, originated in the west. Each of the 12 zodiac signs (e.g. Gemini, Capricorn) fall within one of the four elements, and each element symbolizes certain property or nature of a person whose zodiac sign falls within that element.

for those whose personal dreams and social realities were not "perfectly aligned" and were thus more exposed to pressures and obstacles in life. Perhaps as a result of this empathic recognition of the power of one's innate interest and fate, Dio was reserved about imposing of her own values and approach to decision-making (e.g. one with a strong sense of entrepreneurial practicality or interest in financial benefits) onto others.

This moderation or balance between forging one's position through critical thinking but not over-asserting it onto others was apparent also in Tim's case, who was similarly supported by a strong faith beyond the rational. Arguably, the same non-imposing attitude was less salient in Claire and Audrey, whose non-rational dimensions were not as closely connected to a well-structured religious or metaphysical system. Perhaps more reliant thus on the rational dimension, Audrey and Claire each demonstrated a stronger tendency to persuade or interact with others according to the positions they have critically examined or embraced, which in fact aligns more with the image of a critical thinker as typically espoused by critical thinking theorists. The difference between these students—those whose non-rational dimension was substantially boosted by an established system vs. those who were not— seems to suggest that a more systematically developed non-rational dimension or alternative rationality provided by religion or traditional ways of understanding the world can be helpful in offering a broader and thus more inclusive perspective. From this perspective, human lives are situated within a larger world where the physical and metaphysical are still connected. And with this perspective, it may be easier for one to accept others, achieving more organically the goal of "letting the other be"—as advocated by feminist and postmodern theorists for the purpose of critical thinking.

Lastly, it may also be worth noting that with the metaphysical/astrological knowledge gained through informal means, Dio gained not only confidence in herself as an intuitive knower but also greater independence from the prevailing forms of knowing and thinking espoused in school. More specifically, this epistemic distance seemed to further allow her to make astute observations of the existing practices of critical thinking, as demonstrated in the following quotations on the use of evidence:

> I can say that I judge things not based on evidence…I don't believe in evidence, because I've always felt that there may be hundreds of things that have happened, and you can just choose one as evidence to support your opinion, which can be biased. I've always felt this way, though no one has taught me [to doubt as such].
>
> [Also] in everyday life, you may not be able to find evidence so quickly. For example, when you first meet a person without knowing anything that person does, in which case I would lean on my intuition to make a basic discernment. I would then see if there might be cases later that will verify this intuitive feeling. If it's just intuition without critical source to back it up, I typically won't say it [i.e., share it with others].

Citing warranted or reliable evidence to support one's assertion is a key element of critical thinking,[186] particularly emphasized in the academic context. In academic writing, for example, a good paper entails provision of relevant and credible evidence that supports one's arguments. While the practice of warranted evidence has been widely adopted today as part of academic common sense, Dio's first quotation above presents an incisive challenge to this firmly established element of critical thinking and its justification power. Namely, one may selectively

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[186] As prevalent and common-sensical as this requirement of warranted evidence may seems to be today, it was not always emphasized in the critical thinking literature. As Ennis (2011a) asserted, warranted evidence or "credible sources" became part of critical thinking largely through his work or advocacy: "Another feature I introduced that was not original, but that to my knowledge was new to the philosophical critical thinking literature is the emphasis on judging the *credibility of sources* [evidence]. I introduced it in my dissertation, leaning heavily on a legal source…. Credibility of sources is now fairly widely accepted as an aspect of critical thinking. I suspect that it was not mentioned in early philosophical works on critical thinking because of philosophers' traditional emphasis on argument and reasoning (especially deductive logic)" (p. 10).

pick or present only partial evidence—albeit from reliable sources— that aligns with one's decided claim or position. This observation about the actual limitation of warranted evidence in practice may carry particular weigh in our current educational context, where a largely unquestioning attitude toward the usefulness of evidence seems to abound on the one hand, a balancing emphasis on the incorporation or consideration of counterevidence and counterarguments often lags behind on the other hand.

A similar questioning of the actual usefulness of evidence is also raised in the second quotation, except the context is more specific to everyday life where warranted evidence—i.e., the kind that is verifiable transmittable, and considered reliable in the academic sense—may not be as readily available. The example Dio mentioned was meeting a person for the first time, when concrete or "hard evidence"—e.g. a person's action or background information—is not yet available, but an intuitive discernment of the person via "a quick glance" may be formulated to help determining subsequent interactions. As described in the quotation, Dio was keenly aware of the preliminary nature of this intuitive knowing: while it provided her with useful information or reference point for later response to the person, she treated it as private knowledge that she would not easily share it with others but may look to verify it further for herself. She also seemed to be cognizant of the kind of credible evidence that would be required for claims to be shared or made as public knowledge. Perhaps because of this awareness of evidential standard, along with the spontaneous and informal context of the interview, Dio claimed loosely that she made judgments "not based on evidence." However, as the exercise of intuition probably cannot take place without there being an object and some evidential bases—e.g., a person's presence, features, and the overall energy or quality that emanates from that

person, it may be more accurate to describe the following. That is, while Dio did not use empirical evidence that is typically considered reliable or incontrovertible, she did use some forms of evidence that are more interpretational, less describable, and may thus be deemed as unscientific or unreliable by conventional standard.[187]

Yet it may be argued that even though intuitive knowledge is built upon a different and less recognized type of evidence, it may not be less valuable. In fact, intuitive knowledge may be vital in situations of uncertainty, providing cautionary or affirmational signals that help one to make a more thoughtful decision or response to something new. As Dio claimed that her intuitive judgments have often proved to be right by later events or evidence, intuition can be a reliable and faster alternative to the slower-churning rational cognition. Said differently, having a well-developed intuition or ability to understand one's visceral reaction may be especially helpful and even necessary in certain cases, where the situation or experience is unique to the person and decision is thus best determined by that individual alone. For individuals like transnational Chinese students who can be the first in their families to attain a college degree and to venture abroad—as is the case for most participants in this study, developing a strong intuitive sense could be even more important for the numerous new experiences and decisions they have to make on their own. Alternatively, without the ability to recognize or trust one's intuitive knowledge, one could be more dependent on external conceptions and opinions, finding it harder to act independently and in a timely and effective manner.[188]

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[187] Although this dissertation does not have space to further explore the topic of evidence, it may suffice to say that Dio's observation indirectly raises questions on *what counts as useful evidence* and the largely unexamined ways in which we often use what has been established as "legitimate" evidence. As the use of evidence is considered an essential part of critical thinking, the nature and use of evidence itself needs to be critically examined.

[188] It may be further argued that intuition or the propensity to make intuitive assessment is probably innate, albeit different people exhibit varied levels of intuitive abilities or inclinations. Children, for example, seem to respond and

It may also be important to note that while Dio's embrace of alternative rationality and worldview through fortune-telling provided her with additional criticality for observing and questioning the actual usefulness and applicability of critical thinking, greater utilization of critical thinking could still be helpful for Dio, especially in areas where her beliefs or convictions seemed to be particularly strong. For example, the notion of a predetermined fate in fortune-telling which Dio appeared to have internalized wholeheartedly, also seemed to have left her feeling limited, if not powerless—e.g., "can't think of any solution," for helping friends whose fate or interests did not align with those valued by the mainstream society. By thinking critically of this purportedly absolute "fate" in Chinese fortune-telling, she might find numerous counterexamples that could challenge or modify this belief, without necessarily negating the sacred or the metaphysical entirely. By gathering more information on the contending arguments and changes within the field of astrology or fortune-telling or situating it in a historical context—something that she was apt to do in many other instances, Dio might also gain a more nuanced understanding that the conception of fate has evolved over times and it was not always perceived in an absolute sense. At least, the contending force of social improvement and individual effort—e.g., how activism and a democratic sociopolitical structure might permit

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process experiences more intuitively than adults. In addition, as intuition—alternatively called "gut feelings"— often generate strong visceral sensations that propel us to think or act in a certain way, we may conflate it with the certain of knowledge and share it too readily with others. Yet such sharing or conflation may leave us vulnerable or defensive, for there would be a lack of available evidence that can be readily communicated or used to justify our intuition. Moreover, the blurring of boundaries between intuition, opinion, and knowledge may also diminish their respective functions, unless we recognize the value of each for what it is. In short, it may be argued that learning to recognize, develop, and utilize intuition can be important as an alternative way of knowing and thinking; such alternative may play a vital role in balancing the limitations of rational thinking, broadening the range of evidence defined by scientific reasoning, and ultimately enriching our understanding of ourselves and the world as a whole.

greater diversity and more people of different interests and identities to live fulfilling lives—could be better considered in tension with the compelling notion of individual fate and luck.

5e. Case Summary

In summary, the detailed exploration above on Dio's critical thinking, selfhood, and non-rational dimension makes a compelling case for why her anomaly response to the concept of critical thinking and its significance deserves additional consideration, especially for educational theorists and practitioners. This is because, first of all, her consistent assertion about the lack of clarity of what critical thinking is, in spite of demonstrating strong critical thinking elements in application, can be indicative of the level of the teaching or the lack of it in higher education. It may be argued that because of the limited and unclear explanation of what critical thinking entails in formal education, Dio could not piece together the skills and dispositions she already had in practice and identify them as "critical thinking." While this may not seem to be much of a problem for the small group of students like Dio who develop critical thinking on their own, the lack of explicit and effective teaching can be a concerning issue for many students whose critical thinking development may largely depend on the quality of the education they receive.

Secondly, Dio's reservation about the importance of critical thinking made her case stand out not only among Group I students with strongest critical thinking demonstrations but also among the research population as a whole. Even for students whose understanding and/or application of critical thinking were not as strong, the purported value of critical thinking were as widely recognized by these students abroad as the concept of "critical thinking" itself has been deeply entrenched in American education and society. By contrast, Dio questioned its seemingly

categorical importance—not that critical thinking was not important at all from her perspective, for she recognized its particular relevance in the academic domain and utilized it aplenty on issues big and small across the domains; rather, she questioned whether it was the most useful means for problem-solving in all situations or for all purposes. In other words, whether critical thinking as taught in the academic domain is indeed, as educational theorists and advocators have often assumed, transferable and beneficial for the domain of everyday life and for the prosperity and wellbeing of every individual.

Thirdly, a no less important point related to the second point is that Dio's skeptical or critical stance on the dominance of critical thinking itself might have stemmed from her exposure to alternative rationality (e.g., astrology or Chinese fortune telling) and an intuitive approach to knowing that she had found helpful and reliable, especially with regard to issues in the personal/everyday life domain. While the tension and complementarity between the rational and the non-rational dimension was present in all Group I students to varied extent, Dio's story showcased, perhaps more so than other cases, the value of an alternative or traditional form of rationality and worldview, supporting not only her sense of self and epistemology as an intuitive knower but also her ability to use critical thinking with flexibility and discernment. It may be thus argued that Dio's keen ability to perceive the limitations within the prevailing practices of critical thinking, e.g., on what counts as legitimate evidence and the way of using it, came from a creative space within that was both cross-cultural and marginal.

In short, without intending to critique and much less to negate the importance of critical thinking, Dio's observation and reservation were in fact problematizing this dominant or trending form of knowledge construction that felt, from her perspective, both culturally-specific and

imminently global. At the same time, as elements of both critical thinking and the non-rational dimension were strong in her practices, Dio might also be demonstrating a more inclusive kind of criticality where the rational/critical and the alternative/non-rational can coexist in a mutually complementary way.

6. Group I Conclusion

While students in Group I demonstrated strong critical thinking dispositions and abilities, an affirmational sense of self, and a robust non-rational dimension, they showed considerable variations in each of these areas, as evident or accounted for in the subsections above. They also differed in the domains or issues where they applied critical thinking most prominently and where further application could be beneficial. For example, Claire, more than any other student, used critical thinking extensively for examining her belief systems and assumptions; however, she demonstrated less thoroughness in dissecting the more macro-level concepts, such as "exquisite selfishness," that were asserting heavy social or normative pressure on her as a young members of the generation of Chinese living abroad. By contrast, Audrey as a social science major was more aware and explicit with her critiques of cultural and political ideologies in China that were particularly confining for women and individuals desiring greater freedom and expression; however, she did not show the same level of awareness or critique of liberal values or ideology prevalent in American higher education that she had come to identify as her own. Similarly, but in a reverse order, while Tim enumerated critical observations of the ideological practices of the liberal left in the U.S., almost no substantial analysis or thought was mentioned

on issues of gender hierarchy and inequality in his affectionate or protective portrayal of Chinese culture and society.

Admittedly, the lack of explicit discussion of counterpoints during the interviews may not necessarily mean that they were unaware of the issues on the other side; however, given the thoroughness in which they discussed or dealt with other topics, such oversight appeared to suggest unrecognized "blind-spots." The subsection discussions above also explored instances (e.g., in Audrey and Dio's cases) where the use of critical thinking to examine such blind-spots or strongly-held beliefs can be helpful, if not necessary, in advancing one's understanding and ability for problem-solving.

In spite of the variations and possible "blind-spots" where more of their critical thinking skills can be applied, Group I students demonstrated not only overall strong critical thinking dispositions and abilities across the domains but additional insights into the nature and function of critical thinking that were not typically explored in the academic literature. For example, the purpose of critical thinking as a vital tool for improvement, particularly self-improvement—whether in terms of one's belief system (as in Claire's case), experience (as mentioned by Audrey), or knowledge (as Tim highlighted)—was prominent in all of these students' applications of critical thinking. At the same time, an engaged interest in the other or active consideration of diverse perspectives—and all the while not imposing indiscriminately one's own views onto others, was also emphasized to various extent in their practices or visions of critical thinking.

Perhaps the two most important overarching insights that can be gleaned from these students' accounts are the following: First, the unusual connection between selfhood and critical thinking. Yet considering these students' critical thinking in the larger context of their overall

intellectual and personal development, it was evident, particularly through the cases of Dio and Claire, that early curiosity and awareness of the self in relation to others can initiate or contribute to critical thinking development well before formal exposure. In fact, a keen interest in the self or desire for self-knowledge was salient in these strong critical thinkers or Group I students. In addition, these students demonstrated an affirmational attitude toward themselves and incorporated their knowledge of the self (e.g., who they were and what they needed) as an essential component in their critical thinking or decision-making processes. As conveyed in Tim's metaphor of a growing tree, critical thinking and selfhood constitute necessary components for the optimal development of a person—i.e., an individual who is faced with an unprecedented amount of information, options, and decision-making responsibilities.

The second insight from Group I students' practices of critical thinking is the perhaps even more unexpected complementarity between the rational critical thinking and the non-rational dimensions. While Audrey's candid reflection of her own defensiveness in face of counterevidence or counterargument indicated possible tension between the two dimensions, i.e., strong sense of feeling potentially undermining the rational side, the other students in this group demonstrated a more mutually complementary relationship that can be achieved between the two dimensions. For example, Claire carefully examined the trustworthiness of her inner voice, just as Tim initially on his faith, until she felt confident about following this less well-defined and recognized way of knowing. Both Claire and Tim's experiences seemed to suggest that critical thinking can benefit the development of the non-rational dimension. Vice versa, the non-rational dimension can also enhance one's capacity as a critical thinker in numerous ways, as demonstrated in Dio's incisive observations of critical thinking itself from her perspective of an

intuitive knower or in Tim's assertion that his religious faith has given him "more options to think critically." Their religious or metaphysical worldviews also seemed to provide them with a humbling sense of oneself within a vast universe consisting of not only the human and physical world but also the supernatural and spiritual world. Such understanding of the self within a much broader context seemed to have supported both their non-rational dimension and the ability to adopt a more inclusive, flexible, and non-imposing attitude in their critical thinking applications.

In short, the segment on Group I students provides not only a description of the major characteristics of these students vis-à-vis the strengths of their critical thinking but also analysis of the insights that can be gathered from their understanding and application of critical thinking. These students' thought-provoking reflections call for further considerations about the existing practices, pedagogy, and conception of critical thinking (e.g., the nature and use of evidence), shedding light even on a number of larger issues, such as "epistemic justice"—what counts as legitimate knowledge and ways of knowing. The chapter and the rest of the dissertation will continue to explore these insights and their implications for the teaching and possible reconceptualization of critical thinking, as it expands globally and can possibly play an important role in the trajectory of other parallel developments within the larger force of globalization.

IV. GROUP III

In contrast to other groups, students in Group III exhibited more partial conception of critical thinking and less substantial applications of it across domains. Most of the students in this group also demonstrated a sense of selfhood that was more dependent and other-oriented, which might have contributed to prolonged decisional-dilemma and irrational responses—i.e., reactions that inhibit rational/critical thinking and focused problem-solving.

Of the five students in this group, two of them can be seen as cases in between Groups III and II, because their conceptions and applications of critical thinking were more thoughtful or thorough than the other three. Jiayi, the first in-depth case analyzed in the previous chapter, seems to be an example of such borderline cases. This is because on the one hand, her conception and application of critical thinking in the academic domain indicated a level of sophistication characteristic of Group II; on the other hand, her decision-making or application of critical thinking in the personal domain and her ability to assert and act on her self-knowledge was demonstrably weaker, aligning more with students in Group III.

The purpose of the following analysis is to provide readers with an idea of the spectrum of critical thinking development among the participants in this study; as such, the discussion of Group III is drawn largely from the three students whose characteristics are arguably more salient or representative of the group. Like the diversities shown in other groups, students in Group III also demonstrated individual differences, along with shared similarities, as captured in the pages below. The difference between Becky from the other two, Lili and Erick, may be particularly notable, as Becky's case seems to further complicates the relationship between selfhood and

critical thinking explored thus far in the dissertation, raising also the question of the presumed applicability and benefit of critical thinking for all.

The analysis structure of Group III bears resemblance to that of Group I, with the exception of a missing anomaly subsection[189] and a differently titled 4th subsection that reflects an importance difference of Group III from the other groups. The Group III analysis section includes the following five subsections: (1) conception of critical thinking, (2) its applications across domains, (3) selfhood, (4) irrational dimension, and (5) group conclusion.

1. Conception of Critical Thinking

Erick, a humanities senior, appeared certain about his understanding of critical thinking as he expressed confidence in teaching it to others: "Sometimes I even teach my girlfriend about how I think, how I think critically." Yet his conception of critical thinking highlights only a few aspects of it, as evidenced in the quotation below:

> You have to think from others' perspectives; you have to think in their shoes—why they would do that. Maybe they commit a crime, think in their shoes, why they would risk their lives doing robbery, for 10 or 20 bucks. I get to think in their perspectives and that makes me see different conclusions and answers and choose which answer matches or fits best in the context.

Erick's description accounts for a few elements of critical thinking: Consideration of context, openness to see things from different perspectives, and willingness to empathize with others. Granted, these explicitly mentioned elements of critical thinking may just be particularly

[189] Becky is arguably an anomaly of Group III, because of her stronger sense of the self and lower exhibition of irrational emotions and reactions. Due to the relative shorter length of Becky's case, instead of devoting a separate subsection for its analysis (as the case for Dio in Group I), discussion of Becky is integrated throughout the subsections.

important to Erick and capture only partially his overall understanding of critical thinking. When I mentioned to him other elements—e.g., use of warranted evidence and counterarguments, he recognized them as aspects of critical thinking, particularly in academic writing. Yet, the lack of mentioning of these additional elements also seems to correspond to a lack of sufficient usage in Erick's case, as will be explicated in the following subsection on his application of critical thinking.

Like Erick, Lili also gave an initial impression of confidence in her grasp of critical thinking, as she described on the online questionnaire that the learning process of critical thinking was "relatively natural" for her and that she used it "almost every day." Also like Erick, Lili's actual description of critical thinking indicates partialness, as shown in her questionnaire response: "Be open-minded to anything; not about correct answer; close reading; thinking in different perspective[s]; having one's own perspective." In other words, while Lili's conception is arguably different from Erick's in its explicit inclusion of a non-binary epistemic position—i.e., beyond right or wrong, it pivots toward a few elements of critical thinking also mentioned by Erick: e.g., openness to think from multiple perspectives and emphasis on one's own position.

In her later accounts during the interviews, Lili did not provide a more extensive explication of her understanding or application of critical thinking. In fact, the opposite almost seems to be true. That is, in spite of her initial claim online that the decision-making process on her academic major was an instance of critical thinking application, Lili could not during the interview describe an example of how she might use critical thinking in the person domain, stating that: "I don't really have an idea how to, like, what is applying critical thinking to everyday life. Because I don't know if it is just me sorting out problem, or it's me applying critical thinking." As will be further explored in the following section, Lili's application of critical thinking does

indeed appear vague or indistinct, reflecting perhaps her limited conception of what it means to think critically.

By contrast to Erick and Lili, both of whom were "parachutes" (students who began studying abroad at a younger age) and non-STEM majors, Becky was a STEM student who had been in the U.S. for a little more than two years by the time of our interviews. Having skipped the last year of a regular high school education in China for a better chance of higher education in the U.S., Becky was very focused on her academics; she found her study especially challenging once she transferred from a community college to the research university. Less steeped in the culture abroad and less exposed to the value of diverse perspectives either through her particular academic discipline or personal interest, Becky's defined critical thinking as essentially "logic" or "logical thinking." Recall that this partial conception of critical thinking was also mentioned by Claire (a Group I student) initially, who was also a STEM student in a related field; the difference is that while Claire would later provide a much more substantial conception of her own, raising questions about the conflation between critical thinking and logic, Becky's description remained largely the same throughout the interviews.

The lack of emphasis on multiple perspectives or engagement with others' points of view may be worth noting, because this aspect of critical thinking was something that most participants would emphasize or value. Yet when the idea of sharing different perspectives in class was mentioned in our interview, Becky's response was surprisingly indifferent and personal (speaking about her reflection in first and second voices as if engaging directly to those who were sharing ideas in a discussion):

> In group discussions in the U.S., people have different perspectives; I'll just listen. I won't say anything, whatever you all [referring generally of participants in a discussion] want to

> say would be fine by me; my purpose is that everyone is happy. If you want to insist on your point of view, then I would let you be, accepting your viewpoint. I am not the kind who likes to get into heated arguments with people; therefore, if you want to insist on doing something, then let's do it.

As to be explored further in the later subsections, Becky's lack of interest in engaging with different perspectives may be a response, if not overreaction, to an earlier environment at home where she felt constantly forced into complying with norms that she could not embrace or understand. The demand to be other-oriented was so "stressful" for Becky that leaving her social milieu all together and moving abroad was, at least for a long time, the most appealing option.

2. Application of Critical Thinking

The partial understanding of critical thinking exhibited by Group III students was evidenced not only in their conceptions but also in their applications. For example, to explicate his critical thinking process, Erick mentioned a scenario with his girlfriend where her initial excitement about getting a free consulting session for her job resume turned out, as he had forewarned her, to be a disappointing experience:

> But I told her, it's free, you shouldn't have high expectations. First of all what I learned from philosophy—what makes people angry is because they have high expectations. What you should do is lower expectations, so you don't get upset. That's what I do every day, to anticipate what's going to happen today, what's the worst outcome, and then just anticipate the worst outcome, so that if things really happen, I don't get upset. I teach her what she should or shouldn't do, that kind of thing.

While Erick seems to express certainty about his thought process as an instance of critical thinking, his practice of critical thinking appears partial at best. This is because on the one hand, his description contains some general elements of critical thinking, such as awareness of context (e.g., it's a free session offered by a company) and use of logical inference (e.g., since high

expectations lead to anger, to avoid upsetting emotions, one should lower expectations). On the other hand, these critical thinking elements seem to be operating within a web of assumptions or a certain outlook that has not been examined.

For example, Erick seems to have taken the statement: "what makes people angry is because they have high expectations" to be categorically true. Yet numerous counterarguments or questions may be proposed to challenge this assertion: E.g., *Do high expectations necessarily lead to anger or disappointment? Even if there is some type of association between high expectations and disappointment, does it necessarily mean that one should have lower expectations? In other words, is lowering one's expectation necessarily the solution for a happier state of being?* Perhaps undergirding Erick's seemingly logical train of thought was a view or attitude that suggested a certain pessimism or fear. He not only actively anticipated or assumed disappointments as a recurring theme in life, but also firmly believed in lowering one's expectation as the primary, if not only, solution to painful emotions or disappointments.

This largely negative outlook embodied in his "critical thinking" process contrasts sharply with the more constructive and forward-looking spirit conveyed in other students' applications of critical thinking, particularly those in Group I. Granted, the relationship between one's general outlook and the direction (e.g., downbeat or optimistic) in which one applies critical thinking may be mutually influencing, and one may question whether critical thinking necessarily entails favorable outcomes. Therefore, the quality of Erick's critical thinking perhaps may not be evaluated based on the negative direction or conclusion of his thinking alone. Nevertheless, Erick's account above indicates a lack of reflection on his fundamental outlook with which he

seemed to be driving his thinking; without such awareness or examination, his critical thinking may not be described as robust or at least questions should be raised about its quality.

It may be also worth noting that the kind of critical thinking Erick exhibited in the above application may not align with his description of critical thinking as primarily a way of seeing from "the other's perspective" or "think[ing] in their shoes." While Erick undoubtedly valued this aspect of critical thinking, his applications of critical thinking—whether in the personal and socio-political domain—often suggest that he may not have practiced it to the same extent as he had valued it. If Erick were to have adopted this critical thinking element more fully, he would have perhaps imposed less of his view, aiming to correct his girlfriend's reaction as a matter of "right or wrong" before the situation even unfolded. Rather, he would perhaps have seen the situation more from his girlfriend's perspective—as a recent college graduate eager for guidance in navigating the unfamiliar job market; consequently, he might have been more understanding of her initial excitement and supportive of her trial-and-error efforts for opportunities and help. As will be demonstrated in the following subsection, this mismatch between Erick's better realization to consider from others' perspectives and his tendency to correct others close to him might be a reflection of his earlier experiences in which his own views and preferences were often dismissed and redirected by his mother.

By contrast to Erick, Lili did not seem to be as confident or certain in the interviews about her application of critical thinking for problem-solving in the personal domain, even though she did mention the decision about her academic major as an example in the initial online questionnaire. Lilli's actual description of this decision-making process indicates a prolonged

dilemma that was eventually resolved more by necessity than agency. In the following quotation, Lili explained why choosing an academic major had been a difficult task:

> I tried many interests in high school [in the U.S.], but I wasn't thinking of them as my future options. Because back in high school, I was still very much brainwashed by my parents about how I should go with a really stable life, [pause] yeah. I only thought about my interests as my potential job options in college… it came to be a real struggle for me—the point [or realization that] 'oh, I should make a decision, to somehow figure out what I wanted to do.'

Like Jiayi from the in-depth case study chapter, Lili was experiencing a similar set of conflicting ideas or ideals: the notion of socio-economic stability instilled by her parents and the desire for open-minded exploration and meaningful pursuits based on one's interest fostered in college abroad. Even though her parents were not as specific and explicit about what major or career path she should or should not pursue, Lili felt ill adjusted in the first two years; anxious about her undecided academic major, she took a gap semester near the end of her second year.

Also like Jiayi, the tension or value conflict undergirding the challenging decision for Lili was arguably bypassed rather than resolved, as indicated in the following quotation:

> I still haven't come to a solution yet [voice emphasis by Lili, laughing hard, almost gasping]. Like I wrote it in the survey, I don't pay much attention to it. I just let it be there, both the two sides, and deal with the more realistic problems, like now I have a major, I have to work hard, study hard to get a degree.

The internship Lili did in China during the gap semester seemed to have played a significant role in changing her thinking around the dilemma at school:

> That [internship] just made me realize that working is hard, making money is hard. So instead of struggling, going to the big picture—my interest being my future potential job, it was more like making money is hard, so I really [need to] make short-term goals, instead of focusing on the big pictures. And I realized that reaching those short-term goals might help me see the big pictures.

In other words, unable to determine her preference and feeling pressed by time and necessity, Lili shifted her focus to the more immediate and concrete concerns: her perceived financial pressure in the near future and the requirement to declare a major by her third year in college. And this approach or shift to the "real world concerns" seemed to be further affirmed by her finding out, as she claimed, that many others were having similar experiences: "The more I hang out with my friends now, I realize how everyone has struggles, everyone doesn't know what to do with their lives."

While the major Lili chose eventually did seem to cover both her interest and financial consideration, the additional thinking process as described below does not seem to suggest strong elements of critical thinking:

> I just declared my major this Fall. First of all, I like it very much; but I think, another reason was I just wanted to get a major, because I was always undeclared in the first two years. I came in as a social science undeclared. I wanted to do communication, sociology, or even business econ. But, uhm, after I thought those won't, I guess, be future friendly majors—it would be hard for international students to get a job after undergraduate with these majors [in the U.S.]— I was [then] thinking about mathematics or math econ. Then I found them to be too boring, I guess. And over the summer I was just thinking, I love languages and I should maybe go with it, and I took a linguistic class this past spring, and I liked that class, yeah. [HX: What do student do typically with a linguistic major?] It's very narrow, actually. Either you apply for Ph.D., or for people who studies linguistics and CS, they would go with programming and be a programmer. That's what I am looking into right now, I am taking computer science courses as well [as a minor].

If critical thinking entails primarily the elements mentioned in Lili's description as discussed in the previous section (e.g., being open-minded, considering different perspectives, and having a viewpoint of one's own), then arguably her thinking process for this decision-making does indicates some level of critical thinking. Lili did explore a number of different academic disciplines, consider the decision from both the view of her interest and of practicality, and synthesized a position of her own based on these different considerations. Yet as she even

suspected, such application may not be entirely distinguishable from thinking in general— "just me sorting out [the] problem."

Recall that the applications of critical thinking described by students in Group I demonstrate a number of additional features: e.g., extensive information gathering and research about the different options, selective but diverse reliable sources for judgment formation, and consideration of the larger purpose or long-term trajectory of one's chosen pursuit. These elements are essential for critical thinking as well, for they constitute a more structured, systematic, and informed approach to thinking and decision-making. By contrast, the way Lili eliminated her initial options (in communication, sociology, and business econ) seems to be largely based on her unexamined impressions of the fields and opinions of friends that may or may not be reliable. In a similarly vague manner, Lili also made her decision to pursue a major that promised some rather "narrow" options for the future.

Granted, Lili might have simply liked her chosen major more than others and thus may not mind as much the limited prospects available for its graduates. Even students in Group I did not always make big decisions, such as choosing one's major, with pure rationality alone. Yet a difference still can be discerned in that Group I students were often clear about instances when they were following their intuition, inner voice, or personal preference instead of rational reasoning. In contrast, Lili might be conflating the two in an attempt to justify an important decision that actually entailed a leap of faith, or in her words, "I decided to just go with it." And the fact that Lili did not highlight her own preference but offered a thinly reasoned perspective of practicality may reflect something important: e.g., her knowledge of herself and attitude toward such self-knowledge, as will be explored in the next section on selfhood.

Similar to Erick and Lili, Becky also claimed in the initial online questionnaire that critical thinking is "extremely important" to her and that she used it "every day." However, her actual explanation of the only example she provided—i.e., her search of internship or job, as described below—also suggests a relatively thin application of critical thinking:

> Critical thinking is very important. For example, when it comes to an internship opportunity, I would take it, whether or not I like it; however, if it is a job, how much I like it would be part of my consideration. I would also consider its location and whether or not it provides visa sponsorship…. There would be many things to consider [for a job]; therefore, one needs to think it over thoroughly rather than just focusing on one aspect. [Also] if a task has more than 50% of the chance for succeeding, then I would definitely do it; however, if it is only 20%, I would give more consideration about whether or not to go ahead with it.

Granted, Becky's description of her thinking process above does indicate a few aspects of critical thinking, actually more so than her conception of it as logic. That is, in addition to a numerical/logical decision-making process based on the total scores she may assign to potential options, Becky's application also demonstrates an awareness of context (e.g. internship vs. job) and how that may change her evaluative criteria and the level of thoroughness in which she would apply her thinking. Nevertheless, the kind of thinking demonstrated in her description still centers largely around logical deduction and evaluation.

As this was the only example of critical thinking application Becky provided and her work in the academic domain entailed primarily mathematical problem-solving that was also logic-oriented, the reflective and questioning components of critical thinking seemed to be largely missing in her practice. In fact, if the difference between critical thinking and logical thinking can be said to be that critical thinking deals with "ill-defined" questions that do not lend themselves easily to right or wrong answers, Becky demonstrated throughout the interviews a preference to keep the questions or issues she had to deal with "simple." She also showed a preference to

keep the corresponding answers or solutions simple or straightforward, as indicated in this description of herself: "as I grow older, I have become more like my dad, who has a very firm sense of right and wrong…. Let's say something that others might think it could be right; if it's wrong for my dad, it is wrong." Becky's drive toward simplicity seems to be represented in her conception and application of critical thinking, where logic is emphasized and an inclusive consideration of things from different perspectives is essentially eliminated. As the discussion in the following subsections will demonstrate, Becky's approach to critical thinking and problem-solving may be a particular expression of her selfhood and reactive response to earlier experiences of overwhelming external pressures.

3. Selfhood

Not only were the conceptions and applications of critical thinking demonstrated by students of Group III less substantial relative to those from Groups I and II, but also in most cases, their sense of self appeared less certain and affirmational. If Jiayi's (a borderline case between Groups II and III, detailed in the previous chapter) attitude toward herself on important decision-making—i.e., about her academic major, career pursuit, and residency abroad or in China—suggested self-negation and other-orientedness, Erick's was demonstrably more so in this direction. Throughout the two interviews, his accounts often conveyed a sense of surrender and self-abandonment, as evident in the following quotation:

> My priority right now is my mom, maybe in the future my wife, but for now my mom. I don't care about myself. I just need to make sure I'm OK, I don't need to love myself so much—at the means of two extremes, right [laugh]. I don't think I love myself that much. I don't know. Only cars, maybe.

Erick's above response about not caring for himself might have been influenced by the emotions of remembering the past. This is because prior to this quotation, Erick was describing his family misfortune and explaining why he would "eventually give in" to his domineering mother—because she had endured hardships and raised him on her own after his father left them to avoid an exorbitant financial debt and confiscation of family assets.

Yet this self-negational or abandoning attitude appeared to have been more persistent, for it can be seen in other instances as well, such as in Erick's description below of his experience at the university:

> I am just drifting along,[190] because I have no, all my passion for studying is gone, after I transferred [from community college]. I don't know, I think it's just, I have a lot of friends who studied so hard in city college and then totally gave up when they transferred to [the university]. Because they think that I've come to the best university, so goal is achieved and 'one can die without regrets.'[191]

The above quotation indicates not only a dispirited attitude Erick had toward his study, but also a strong other-orientedness in the reasoning process that was salient in Jiayi's case as well. While Jiayi often deferred to others as an authority greater than herself—i.e., what "everyone else" was studying or what her family members thought she should pursue—in her struggle to make her own decisions, Erick frequently explained away his choices or situations by referencing others' behavior or influence on him. In this instance, he legitimizes his detached or relinquishing attitude toward his study by citing that it is a common phenomenon among his friends or fellow transfers. Later, Erick further justified his drifting existence at the university by adding that "the

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[190] While Erick spoke mostly in English during the interviews, he used a few words in Chinese that seemed to capture more accurately what he wanted to convey. Here, the Chinese word or phrase he used was "混，混日子" which can also be translated as idling away one's time with a sense of purpose or direction. Elsewhere, Erick also described that he was "simply wasting time" at the university.

[191] Here, the Chinese phrase Erick used was "生无可恋," which can also be translated as having nothing more or higher goal to strive for.

degree is only for my parents"—referring to their constant (particularly his mother) interventions on where and what he should study or do.

Yet when Erick first started pursuing a college degree at the community college, it seemed that, at least for two years, he was finally thriving (after many years of unsuccessful experiences abroad elsewhere) and the move to the U.S., though directed by his parents, was initiating a positive change for him. According to Erick, the more relaxed environment, friendly students, and supportive faculty members at the community college inspired his passion for learning for the first time. He was not only excelling in his courses but also finding his passion for teaching and clearly enjoying the experience for himself. Once he arrived at the university, however, things took a drastic turn. Academic pace and content were much more challenging, classes became bigger, and most of his professors demonstrated no interest in or commitment to teaching. Erick soon felt disappointed, disoriented, and started to "hate" his course of study, finding it both hard and boring. By the time we met for the interview in his last year of college, he had stopped going to most of his classes, unless attendance was absolutely required. In other words, when things were not going well, Erick seemed prone to assign blame to the other in power—e.g., parents or school—for both the intention and quality of his experiences and actions.

While transfer students constituted almost half of the junior and senior participant population in this study, and most of them experienced various degrees of academic and social challenges as transfers, the extent of negativity in Erick's experience or response to the change appeared unusual. He seemed to be particularly affected by his environment: happy and thriving when it was favorable and detached and withdrawn from his environment and his goals when the external conditions were not as favorable. Granted, Erick also demonstrated another side,

where his desire for independence, understanding, and kindness was persistent—as his choice of academic major and participation in this study consistently indicated an interest in learning about himself, in assisting others, and in living a morally "decent" or "conscientious" life as he called it. Yet these more constructive qualities of his selfhood often seemed to be overwhelmed by his emotional response to unfavorable circumstances, resulting a tendency of resignation and resentment. Such reaction or overreaction, along with its connection to his critical thinking development, will be further explored in the following subsection on Group III students' irrational dimension.

In contrast to Erick, Lili's parents were far less imposing with their expectations for how she should lead her study or life. In fact, Lili seemed to think that had her parents been more forthright with their wishes, she would have had an easier time making her own decisions, as conveyed in the following quotation:

> I guess, if they do that [knew what they wanted and told her so clearly], then I will think about it. If it's really what I don't want, I will try to communicate, like, let's make a compromise, talking to each other together. But now they don't know what they want, and I don't really know what I want, so it's like a very vague and ambiguous situation. And that's how conflict starts, I guess.... I guess they really want me to be happy, but they don't know how they can make that happen, to the best result. They definitely have something in mind, but they don't want to tell me, because they don't want, you know, their decision to influence mine. It's really nice of them, I guess, it means they really love me, so they let me have that [choice].

Perhaps without intending to defer the responsibility for her own decision-making to her parents, Lili still seems to attribute her decisional dilemma largely to their lack of intervention, which she further explained as a result of their lack of knowledge "of the job market in China and the U.S." and limited ability to help her as a first-generation college student.

Yet behind Lili's apparent complaint was a deeper sense of dismay, stemming from the realization that she had to be on her own now and could no longer depend on her parents for solutions in the way that she had been used to. Growing up in a migrant family that moved from a small town to a big city in China, Lili had looked up to her parents as resourceful decision-makers, who, in spite of their limited educational background, had owned a retail business successful enough to allow Lili and her younger sister to pursue secondary and higher education in the U.S. Especially since college, however, Lilli found herself increasingly taking the reverse role, where she had to guide or explain to her parents about the new environment and her experiences abroad and they often could not understand much of what she communicated. Similar to some of the other participants' experiences with their parents, such as the poignant description by Claire in the previous chapter, Lili also felt a growing gap and strained communication with her trusted parents. These changes in the relationship were distressing for Lili, because as much as she enjoyed her freedom abroad, she also felt "more secure around my parents, my family, but here, it's just me alone." In other words, like many other Chinese students in the study, Lili's sense of self was intimately connected with her family or parents. In her particular case, this closeness manifested not only in the initial form of dependency on them for problem-solving and decision-making in the personal domain but also in the later form of imputing to them, to a large extent, her prolonged decisional dilemma about what to study or where to stay after graduation.

Somewhat unlike the other-orientedness developed in Erick and Jiayi, which seems to have been shaped more substantially by the forceful or persuasive pressures from their respective parents, Lili's other-orientation toward her parents appears to have grown more

voluntarily. She persistently wished for their input and kept informing them about her experiences, even after she realized that they no longer could provide her with the kind of answer or understanding that she was seeking. In a way, Lili's intense focus on her parents in her decision-making processes seems to have functioned as a diversion, helping to keep her away from exploring a harder question—what she wanted for herself. As Lili described herself when applying critical thinking in a more personal way: "I find that really interesting to learn other people's perspectives, [but] it's overwhelming, when I try to explore [it with] myself, I guess, try to figure out what I like."

While Lili may have indeed felt that her self-understanding was vague, her descriptions of herself throughout the interviews were demonstrably consistent: e.g., "as a transnational, because I really don't identify myself with one specific places," "if it's just me, it doesn't matter where I go," or "I never really had a dream, I guess, of what I wanted to do. So I am open to anything." These statements together convey a portrayal of someone who was flexible instead of fixed on staying in the U.S. and pursuing an ambitious academic or career goal. This characterization seems to align with Lili's other plans: e.g., her increasing preference for eventually returning to China—citing the greater sense of security around her family as a reason, or her decision to first remain in the U.S. for a few years after graduation—mentioning her motivation to be the desire to spend more time and care for her younger sister who would soon be arriving for high school. In other words, Lili might have in fact had consistent preferences; what was missing perhaps was for that information within herself to be translated into self-knowledge. Perhaps, like Jiayi, Lili also lacked an affirmational stance on who she was and what she preferred, which would have helped her to feel more confident about making her own

decisions. She would have been able to better recognize and incorporate information within as an important source of knowledge for evaluation and decision-making.

Interestingly, over the course of the two interviews (one at the beginning and another at end of an academic year), Lili did gradually, albeit reluctantly, come to term with the necessity of developing her independence and responsibility for making her own decisions. Her growing agency are apparent in the following reflection from the second interview:

> Yeah, I do believe that there's no right or wrong answers. That's why, like I said before, when there's a problem coming up and this is the result I want, I would just try really hard to make it happen, even if I don't know it's wrong or right…. in my situation there's no other way to do it, because my parents can't really tell me what's the best. So it's ME, myself judging if it's the better solution.

The quotation demonstrates Lili's growing epistemic maturity, suggesting that in spite of her uncertainty, she was ready to commit to a position of her own based on her best judgment. The quotation also seems to suggest that in contrast to Erick and Jiayi's parents who remained dominant or capable in directing their children's future and decision-making processes, the increasingly limited input Lili was able to receive from her parents might have, by default, forced her to be more self-reliant. And arguably, this awareness of one's own responsibility and independence, if not also aloneness, can be a powerful drive for improving one's capabilities, including critical thinking, since the success of one's commitment and action would depend substantially on the quality of one's thinking and judgment.

More interestingly, as Lili moved forward by making important decisions or assertions of her own, she also seems to have gained not only a clearer understanding of what she wanted but also what her parents may have always wanted for her:

> I think my parents don't really have an idea, but uhm, they definitely wanted me to stay here, but they don't know how hard it is to find a job here. [HX: So they've given you a

> clearer indication of what they want for you now?] Or [lauder emphasis given by Lili as she burst out laughing] it's just that I didn't realize. Maybe they've given me this direction all the time, but I didn't realize. I just thought they were saying it without serious intentions…. My dad said you should get a PhD and you can stay here for another 4,5,6 years; even if you don't go to academia afterwards, you're going to be more competitive in the job market. That's when I realized that they've always wanted me to stay here. [HX: How do you feel about it now?] I guess I still don't care what they want [burst out laughing again]. Uhm, yeah, like I said, I've already had two years planned and I am going to see what I should do [next].

In other words, once Lili became less other-oriented and was able to clarify for herself what she had wanted in order to make her decision, her perception of the other—i.e., her parents and their messages—also became more lucid and perhaps accurate.

It may be important to note that Lili's quick reflexive response in the above quotation—i.e., that she "do[esn't] care what they want"—is an exception to the more consistent expressions of filial attachment and reciprocity expressed throughout the interviews. Even at the very end of the second interview, for example, Lili stressed that should she not able to make both herself and her parents happy at the same time, her parents should still take the priority— "They DO [louder pronunciation]; for all these years, they're the ones who supported me." Still, the seemingly uncharacteristic statement of sudden detachment in the above long quotation might have conveyed a message that was not entirely random or insignificant. Borrowing a term from the self-authorship literature detailed in the theoretical framework chapter, Lili was or has arrived at a "cross-road" between her old/habitual selfhood (which had been defined closely in relation to her parents' wishes) and her new/emerging selfhood (in which she adapts to a more independent and self-affirmational attitude toward herself and her wishes). As characteristic of an individual at the cross-road stage, Lili's orienting principles, such as her prioritization of herself vs. her parents, may change back and forth between the two different selfhoods, before she can

grow comfortable with her new internal identity or settles into the next, self-authoring, stage of development or maturation. In short, Lili's selfhood may be described as one that was changing by necessity: while exhibiting characteristics of an other-oriented and negational orientation at times, her sense of the self was also evolving to adopt a more independent and affirmational attitude toward who she was and what she cared to pursue.

In terms of selfhood, Becky seems to be an anomaly of the group—hers was affirmational (like students in Group I), almost to the point of appearing indominable. Her earlier experiences and attitudes, however, shared many resemblances to Erick's, such as intense pressure from her parents and at school and a frustrated and detached attitude toward her study. According to Becky, she resented the traditionally uniform and test-centered education in China, where everyone learned the same thing in spite of their different interests, and where the same materials were being drilled repeatedly to them for the purpose of testing scores. Internally frustrated and rebellious, Becky said she did not care for her study and thought that "everything else, except things that have to do with school, was interesting." Feeling bored yet unable to change her situation, Becky resorted to watching a large amount of popular American TV shows as a form of entertainment and escape. Quickly absorbed in the alternative world portrayed in the foreign dramas, Becky developed a strong desire to go abroad for what seemed to be "a much bigger world out there." When her parents rejected her idea of going to the U.S. for high school, Becky felt crushed; according to her recount below, even her overall demeanor at school had changed:

> I was a very outgoing kid before. Then I wanted to go abroad for high school; my parents wouldn't let me, so I was pissed and rebellious and felt extremely depressed. All my high school teachers commented that I was a very quiet girl, which was funny for my mom and

> I [i.e., considering how she used to be outgoing]. In any case, I was not happy in high school and was quite depressed.

In other words, as a form of resistance for what could not be readily expressed in other ways, Becky withdrew from her study, surrounding, and arguably, even herself for a while. This disengagement and withdrawal response bears resemblances to Erick's when he encountered repeated setbacks or unsupportive environments.

Yet in contrast to Erick, once Becky was allowed to come to the U.S. for higher education, her attitude toward her study and future changed drastically. In spite of constant academic stress and challenges, Becky showed resilience and perseverance:

> The way I deal with tests now is that I review a bit every day, to the point I feel like I can't do it anymore. If there's still some time left, I won't do more but resume the reviewing the next day. So I am reviewing all the time, which can be quite exhausting. But at least, I don't have deadline pressure or the kind of pressure of being told to do this or that before the deadline. I am in control of my time and pace, and I feel good about starting the preparation early.

Becky's self-motivated and proactive approach to her study in college in the U.S. seems to contrast sharply with the bored and detached attitude she had earlier in high school in China. In addition to her already packed academic schedule, Becky also mentioned pushing herself to learn computer programming on her own to increase her competitiveness in the American job market once she graduates. It was as if by gaining more freedom for what and how she wanted to study and lead her life in the new environment, Becky was finally in charge of her life and living in a way that she had always wanted—self-sufficient and free from others' interference or pressure.

It may be thus argued that even though Becky had adopted a disengaged attitude toward school prior to college, her core self seems to have remained largely intact. In fact, this innately strong sense of the self—manifested in her early childhood as "I would do everything I could to

get what I wanted"—was ready to bounce right back when the environment became congenial. And its rebound is evident in Becky's following explanation on how her change of attitude abroad had a lot to do with the fact that coming to the U.S. was her own choice or initiative:

> The pressure I felt in high school was particularly intense, and the kind of pressure I feel now is actually similar to what I had experienced then. However, whereas in high school, I couldn't deal with it [i.e. the pressure of going through the hurdle of repetitive learning and testing] and felt as if I'd rather die, I now feel much more at ease. Even though the pressure is still great [abroad], it doesn't bother me as much. I guess I was too young in high school, feeling like I needed to resist the world or something, because I couldn't get what I wanted [going abroad for a different kind of education and lifestyle]. Now that I have gotten what I've wanted, I feel it's time for me to be more compliant and work hard when it's time to study.

The journey abroad can be seen as a turning point for Becky who had longed to live according to her own vision. Therefore, once Becky got into the steering position, she perceived and accepted willingly everything that came along as her responsibility, leading to a drastic shift in her attitude toward her learning and future. Even though Becky also discovered, like Erick, that life and study in the U.S. was not quite the same as how it was portrayed in the American TV shows or movies, she did not dwell in such disappointments or disparities. Rather, throughout the interviews, she highlighted the freedom and agency she was now able to exercise and the subsequently happier and more confident state of being she enjoyed.

The same strength of selfhood Becky demonstrated in directing her study and living on her own in the U.S. was also manifested in her ability to adjust her plans and regulate her stress level for optimum learning results and sense of well-being. When Becky realized that her drive for academic achievement (for the purpose of being able to work and remain in the U.S. after graduation) might be adding too much pressure on herself, she quickly reduced the pressure by

considering other options (e.g., going back to China, if she had to, or to other foreign countries) and by focusing on what mattered to her the most:

> I think I've gotten over it and realized that its more important that I live happily. I was very fixated on grades when I first came here, but now—perhaps it's because I have had too many bumps along the way or I have grown up—my mentality has gotten so strong [laugh]. To me, it's this simple: I study hard because I want to have a good job, and I want to have a good job because I want to make money. I don't have an ambitious life goal, like actualizing my values as an individual or something like that. I just figured that one could spend each day happy or unhappy [so why not live happily]. [HX: What is happiness to you?] Happiness for me is not being forced to do things that I don't like. Say if I want to study at a particular moment, I can study no matter how loud my environment is or how everyone else is having fun playing a game. However, if I am forced to study when I don't want to, I would feel unhappy.

Becky's reflection on what was essential to her is consistent and clear: happiness as freedom to be herself (money was perceived by her as means to live in a more free or self-directed life). Although Becky seems to consider her life goal "simple" and differentiates it vaguely from the "ambitious" goals of actualizing one's potentials, it may be argued that she has, in fact, persistently strived to realize her individuality or inner drive for freedom and self-expression. Such life-long pursuit can be lofty/ambitious, depending on whether or not one's circumstance inhibits (covertly or overtly as some participants have described of the difference between the U.S. and China in the age of globalization) individual freedom or ownership of one's time and energy.

In short, in contrast with other students in Group III who exhibited a more negational and other-oriented selfhood and experienced greater internal struggle, Becky demonstrated an affirmational sense of the self that was both clear in its self-knowledge and committed to realizing her own vision. Even though she adopted in high school an appearance of being compliant or "quiet" in an environment that was unyielding, Becky did not seem to have

internalized—to the same extent as other Group III students did—external pressures or opinions that could have negatively influenced her perception and belief in herself in a profound way. Consequently, her affirmational and independent self was able to re-emerge and extend itself in a new environment that permitted more flexibility and freedom.

4. Irrational Dimension

It may be worth noting that Erick's disappointment and withdrawal response to his university study, as briefly described in the previous section on selfhood, contrasts sharply with other transfer students' account of their experience in the study. Even though many of them, like Becky, described various kinds of academic and social challenges as community college transfers at a competitive research university, most of their evaluations of the university experience were largely positive and attitudes constructive—working and strategizing even harder for their academic and career goals. In addition, Erick's reaction to the environment stood out not only because it was substantially contrary to others', but also because he often generalized his own as a typical response among his friends or transfer students at large. Such reactions or overreactions may be called "irrational," where one's negative emotions generalize and overwhelm one's rational abilities to make finer discernment and see other possible aspects of the situation. By reacting to his environment with strong negation or irrationality, Erick may also be relinquishing his responsibility and opportunities for learning and growth.

Yet delving a bit more into the larger canvas of his story, Erick's irrationality seems to have mirrored his experiences at home. According to Erick, his mother was "really strict, really dominant," who "sometimes [took] advantage of that [i.e., his financial dependency and filial

loyalty] to force me to do things." Even though he would dutifully call her every day to "just to tell her that I'm doing ok or what not," their conversations were rarely deep or intimate. This is because Erick had largely refrained from telling her about his actual thoughts or life, in fear of her strong disapproval:

> To her, I am always a kid. I'm still studying; I don't know about the society—how harsh and how realistic the society is, you know…. It's hard for me to convince her that she's wrong. It's been like that the whole life; every time I tried to correct her, she would say something like 'you are still a kid, you don't know things.' Because of that, I try not to tell her a lot of things, just try to keep away from her. Because it's better for her not to know than keep telling me [the same message].

Aware of his own vulnerability in the relationship and his mother's stubbornness in her own perceptions, Erick's withdrawal response may be seen as a measure of self-protection.

Yet, it may also have been an internalization of repeated negations or dismissals in the familial/interpersonal dimension, aggravating his doubts about himself in the intrapersonal dimension. As evident in the following quotation, after striving to but finding difficulty carving out a path for himself as a car mechanic (before moving to the U.S. for college), Erick became increasingly doubtful of himself and ready to resign:

> I was firm with my decision for one and a half or two years. But I regretted it. There were a few times I was pretty firm with my own decision, but most of them didn't come out good. She said, 'you see, I told you, blabla.' It just make me hesitate at my own choices. So maybe, I'd say maybe I'll listen to her next time, even though what she says isn't what I want to do.

Even though Erick remained interested in cars—selling and buying a few whenever he could, he had largely given up on his initial "dream in opening a car shop," reflecting that such disapproval or lack of support at home "actually upset me with my passion." By the time we met for interviews in his senior year, moreover, it seemed that he had relinquished not only this original passion in cars but also a later passion in teaching and learning that had emerged while he was

at the community college. The apparent challenge and perhaps indifference of a much larger competitive university environment felt alienating and unsupportive for Erick, perhaps echoing the lack of support in his earlier experiences abroad (i.e., another foreign country other than the U.S.) or at home. Shortly after, his general attitude plummeted: he became detached from school and skeptical about having passion at all—except in making money or proving to his family "that I can make money too."

Seen from the larger context—i.e., prior experiences and familial background—within which Erick's university experience took place, his disappointment and overreaction to this unfavorable circumstance may be more readily understood. It can be seen as an accumulated frustration and reaction to what seemed like a recurring pattern of interactions where his interests and needs were negated or unsupported. Such interactions was first experienced at the familial/interpersonal level and later at a more macro/social level, resulting a strong negative emotional response or reflex that can overwhelm the better hopes and attitudes, along with the kind of rational/constructive reasoning that could have steered Erick more focused on his goal and agency in spite of unfavorable circumstances.

In a way, Erick's routine reflection of the day mentioned in an earlier subsection—anticipating "what [may be] the best and the worst outcome" and reflecting afterwards "what [he has] done right or wrong"—can be seen as a countermeasure or positive effort to reduce potential disappointments and manage his wellbeing. Erick recognized the benefits of this reflective practice, as he spoke positively of it as an expression of his critical thinking or "self-consciousness." Yet the way Erick reflected about himself and experiences in terms of right or wrong seems to suggest not only a binary epistemic stance (i.e., right or wrong, good or bad,

correct or incorrect)[192] but also a lack of critical thinking of the very values or beliefs that constituted his evaluative criteria. This is because his reflections were often done with reference to a set of implicit criteria or beliefs which, according to him, had been instilled to him by his mother: e.g., be cautious about what one says, the more one says the more mistakes one makes, be observant and modify one's action according to the liking or disliking of the other [usually authority figures].[193] Erick rarely indicated an attempt to question or examine them, even though these notions might reflect the larger norms that had perhaps contributed to his mother's protective but also dismissive attitude toward him.

Yet as other participants, such as Claire, asserted, examining one's belief system constitutes an essential part of critical thinking that improves one's experiences and ability to evaluate and make decisions. In Erick's case, adopting a more critical approach to his beliefs might enable him to see that on the one hand, the cautious and deferential values he had imbibed may contain some truth—e.g., reminding one to be sensitive to the context, audience, and one's rhetorical or communicative style; on the other hand, when these admonishments are taken to be categorically true or for granted, they may act in a limiting or discouraging way on one's expression, agency, and even critical thinking development which invariably entails allowance for self-expressions, experimentations, and thus imperfect attempts.

Take the phrase, for example, "the more one says the more mistakes one makes." A more critical understanding of it may entail seeing it both as a valuable recognition—i.e., that words

[192] Even though Erick also mentioned phrases suggesting a more relative epistemology, e.g. "everything has the good and the bad" and "it depends on what you want and what you can sacrifice," by and large, when he delve a bit deeper into his thoughts and particularly about issues in the personal domain, binary concepts seem to dominate, e.g., "right or wrong," "good or bad," "correct or incorrect."
[193] The original Chinese phrases spoken by Erick were: "讲话小心，多说多错，识相，看人家脸色."

can have consequences and one needs to be self-protective in certain communicative contexts—and as a potentially overprotective or confining force—i.e., when it is used as a convenient excuse to relinquish one's responsibility to speak the truth when it needs to be known or communicated. In other words, by examining or reconsidering these beliefs that constituted his evaluative criteria, Erick might have been able to see the limiting force of these beliefs when applying them unexamined or taking them to an extreme. Consequently, he might adjust his adoption of such beliefs and be freer to reflect in a way that focuses more on his agency—i.e., his ability and responsibility to negotiate, to learn from past experiences, and to better strategize toward his dream or goal. Such restructuring and self-affirming efforts stemming from a more critical approach to one's belief system might also help Erick improve his routine reflections and better counterbalance the negative emotions or irrational force undergirding his detached and surrendering attitude toward obstacles.

To a lesser extent, a similar kind of irrationality was also exhibited by Lili, especially in the earlier interview where she was still struggling to come to term with her own responsibilities for decision-making. Her wishful interpretation of her decisional dilemma in the first interview—that it could be resolved only if her parents had given her a clearer indication of what they had wanted for her—is arguably irrational, because it was inhibiting her from exercising her agency and using her rationality for problem-solving. As Lili later started to accept her own responsibilities by the time of the second interview, she laughed with relief and disbelief at how she could not have perceived before her parents' preference (for her to remain in the U.S.) that had been consistent all along. Moreover, once Lili moved beyond the wishful stage and put herself in the decision-making role, the kind of thinking she frequently practiced also changed: "I

sometimes see it even as a math problem. This is the problem, this is the kind of solution I want to have with them, and the rest how to do it to reach that goal." In other words, Lili's rational thinking became more prominent as she shifted her focus to herself and to strategies that could enable her to effectively reach her goals.

Like Erick's self-abandoning and withdrawn attitude that reflected his earlier experiences, Lili's irrational focus on the perceived vagueness of her parents' direction for her also seems to have stemmed from a deeper experience or desire. For Lili, it was to preserve the close and secure relationship she had always enjoyed with them. Perhaps as a result, there was a fear of the growing gap or differences between them as she lived abroad. This fear of potentially contradicting or upsetting them might have, moreover, prevented her from seeing clearly the divergent paths she or her parents each had in mind. Even after Lili became assertive about her own plan by the second interview—i.e., to remain in the States for a short-term rather than a long-term as her parents had wished for her—she still believed that her wish was to "make myself happy while still make my parents happy" and her parents would "take the priority" should she have to prioritize one over another. In other words, Lili's sense of filial attachment or reciprocity was so strong that it made it harder for her to perceive and accept the inevitable: that there were indeed wishes her parents had that were different from her own (rather than merely vague as she had previously believed for a long time), and that there were times she may have to choose a priority between herself and her parents (as she in fact did by prioritizing her own postgraduate plan over her parents' for her).

While Lili's decisional-dilemma was beginning to resolve by her coming to terms with her own responsibilities and becoming more assertive and affirmational of her preferences, her

experience and relationship with her parents may be further improved by applying more critical thinking in the personal domain. As Lili realized that since her parents have also consistently expressed their desire for her security and happiness—which was probably more fundamental to them than their wish for her to remain in the U.S.—better communication that can enhance mutual understanding would be the key. Arguably, clearer perceptions and understanding of oneself and others through critical thinking can help to improve communication. By examining more closely, for example, how they each defined the shared value of "security," Lili might realize that while both her parents' and her own conceptions of it entailed some level of financial security, their understanding diverged in other ways. That is, on the one hand, her parents wished for Lili to remain in the U.S. largely because of the better environmental security they perceived (e.g., better air quality and friendlier social norms); on the other hand, it became increasingly clear to Lili that she wished to return to China for another type of security—socio-emotional security (e.g., being together with her family) that she was missing while living abroad on her own. Their divergence stemmed from their different experiences, concerns, and contexts, yet each was supported by a reasonability of its own. Having a clearer perception of the different sides along with the understanding that they also converge on the shared value of security and happiness, Lili might be able to address her parents' concerns better and inform them of her rationale for her own wellbeing—which was ultimately her parents' priority as well.

In addition, an even more fundamental notion or value that may need to be examined is the belief of filial reciprocity prominent not only in Lili's thinking but also among many other Chinese students in this study and beyond. This is because this traditional norm, which can weigh heavily for some students like a "moral imperative," as one student called it, might have played

a significant role in Lili's frustration and wishful thinking in face of her own decisional dilemma. Filial reciprocity often translates into the logic that because parents have generally "sacrificed" for their children, children need to make reciprocal sacrifices to make their parents happy. As a result, when the participants cannot align their plans with their parents' or wish to prioritize their own preferences, a guilty feeling was aroused for acting "selfishly" or "individualistically." For transnational Chinese students like Lili who have spent many years abroad in the U.S. where the educational and larger social cultures put greater emphasis on individuality or individualism, they may be caught in between two contending pulls—one that compels them to prioritize themselves and the other to fulfill their filial obligations. Perhaps unable to come to terms with this difficult choice or emotional burden undergirding her decision-dilemma for a long time, Lili inadvertently diverted her focus to the purported lack of clarity in her parents' instruction or communication, which rendered her initial response to her decisional responsibility wishful and irrational.

By applying critical thinking to this culturally significant concept of filial loyalty, Lili might still recognize the importance of filial love or familial bond, while beginning to examine the prevalent assumption of equal or sacrificial reciprocity. That is, does the "sacrifices" parents make with their time, energy, and financial resources for their children necessarily entail that children, whose interests and preferences differ from their parents', must "sacrifice" their dreams in order to make their parents happy? Are these two instances of "sacrifice" the same? Do they (two types of sacrifices) lead to the same kind of "happiness" for each other (parents and children)? If not, how should the parent-child relationship be perceived and carried out, and for what ultimate purpose? Such questioning or problematization may not lead to an immediate answer or the same answer for every case or every student. However, it may open up some

space from within, allowing for new perceptions and solutions; at least, it may help to reduce filial guilt or other emotions that can inhibit clarity in perception and focused thinking on one's trajectory and wellbeing, which, by extension, matters to the happiness of the family as a whole.

In comparison to Lili and Erick, Becky's exhibition of irrational responses was less obvious, especially in the new environment abroad where she was diligently focused on her study and thought consistently and strategically on how to achieve her academic and personal goals. If irrationality can be understood in this study as reactions or responses that often stemmed from negative emotions or experiences and that hinder one from thinking constructively and making effective choices, Becky's earlier attitude of resenting and detaching herself from her study in China might have been irrational. Yet perhaps more precisely, what her youthful discontentment reflected was an environment that was arguably irrational, in that it was for likely to stimulate negative experiences and foster irrational responses.

This is because the extreme pressure to conform or to live up to someone else's expectation was felt by Becky not only at school but perhaps even more so at home. Even though Becky often spoke about her parents in a tone of deference, understanding, and even humor, the impact of their parental style can be discerned in her experiences growing up and later preference to remain abroad, if possible. According to Becky, her parents were strict with her when she was young; particularly her father, who held on to a traditional notion that filial obedience can only be procured through severe parental discipline.[194] Becky recalled her childhood experience below with a sense of relief and almost bemusement:

[194] Chinese original from Becky was "棒头里出孝子." The phrase can be translated more literally as the following: a filial child is a product of the rod [symbolizing strict discipline, if not actual physical punishment].

> My father was unforgiving when I was young. If I were not obedient, he would scold me relentlessly, so I won't dare to do anything that might be considered 'not good.' If I scored something below 95 in elementary school or below 90 in middle school, I would get very nervous, thinking that I didn't do well…. I was [also] berated when I didn't write my Chinese characters neatly [burst out laughing], or beaten by my mom when I used to hunch my back [laughing again]—things that others might find it incomprehensible why such things should deserve punishment. So I have never done things like hanging around with friends after school; I have always gone back home right away.

Attributing to her innately "cheerful dispositions," Becky said that she did not feel much affected by her parents' strictness. Even though she generally avoided imputing her parents for the unhappiness she experienced growing up, she could not help adding with in impish glee that "any other kids could have been easily traumatized" by such parental style. Later in the interview, Becky seemed to make an indirect recognition of the impact of her earlier experiences, when she cited the following observation about her being too hard on herself:

> I had a lot of stress when I first came here; my uncle said that I should go out more to explore and have fun, instead of imposing too many restrictions on myself, and once I start to relax a bit, things will become better.

The stress Becky put onto herself in the initial stage of her study abroad seems to echo the earlier demand from her father on high scores. Luckily, Becky's father mellowed down and adopted a much gentler and appreciative attitude toward her after she left for the States. Perhaps it was no coincidence that in the second interview in which Becky mentioned feeling supported by her parents during her time of intense academic stress abroad, her attitude toward her study became significantly more relaxed, though still diligent.

Social context is another source of pressure that seems to have been even harder for Becky to cope with and that had fueled her desire to stay far away from home. Like the way she spoke of her father, Becky also did not impute her mother, even though she (her mother) played

a major role in channeling various social expectations or normative pressures to Becky by her gentle but persistent chiding:

> My mom often tells me that I am too independent—doing everything by myself—and that I should [invest in building my social network and] ask others for help more often. That's necessary, but right now I don't have such needs, except perhaps for internal referrals when I apply for jobs…. She speaks to me like she was educating a young child. [HX: You don't seem to enjoy being spoken in this way] She is my mom, what else can I do but listen to what she had to say. I would utter [sounds] to show my acknowledgement, but in reality, she wouldn't know whether I actually did things on my own or asked others for help when I am abroad.

While Becky was able, as evident in the above quotation, to largely resist conforming to social expectation highlighted by her mother and enjoy her independence in the U.S., it was much harder whenever she was back in China or had to face the high maintenance of social relationships at home. There would be peer pressure to "dress up nicely" whenever she gathered with high school friends, expectations for her to bring gifts for each relative when she went back for a visit, and obligations to meet with people she "didn't like"—relationships maintained by her parents for the purpose of exchanging favors:

> Even though there is also pressure here, I feel freer and more relaxed. Social networking is also important here, but the kind I experienced in China often depended whether or not you have more power or something like that, so it's more complicated. I don't like to socialize with others in this way, especially with those I don't like. For example, every time I go back to China, my mom would say you should go out for dinner with certain relatives to keep the tie… or her colleagues would invite us out for dinner. [HX" Why did they make the invitation or you had the obligation to go along?] Because they had tons of questions to ask me about my life abroad and wanted me to pursue their children to go abroad as well…. I feel people constantly gather together over meals in order to maintain their friend relationships in China, like they always have to do something to keep the tie; it's just so tiring. To me, true friendship shouldn't require such frequent interactions.

Even though Becky recognized that such maintenance of social ties was part of the local custom and understood its utilitarian rationale as being "reasonable within that social context," it still

bothered her that she was “unfree to do what I like” or follow her own reasoning. Yet often feeling that “there is no way to get around it”[195] or she would “appear out of place with everyone else,” Becky preferred the casualness and freedom in the U.S., in spite of the accompanying sense of loneliness. She felt she could deal better with the pressures abroad, because she was in charge of any necessary adjustment or problem-solving.

While China has become a more dynamic and diverse place due to its open-door economic policy and the prevailing force of globalization around the world in the past few decades, certain spaces or topics may still remain relatively closed to change. The educational and social environment described by Becky from her experiences, while not atypical, seems to be more stifling than others portrayed by some participants in the study. Hers was an environment that generally permitted little, if any, individual differences, points of view, or reasoning. Perhaps being on the receiving end of this larger force that emphasized conformity and that repressed individual viewpoint and rationality, Becky was focused on her own position or preferences when she had the chance to do so while abroad and less inclined to take interest in what others had to say. In fact, Becky’s attitude toward the other and diverse ideas as potential sources of imposition or conflict, as demonstrated in her reflection[196] of classroom discussions, was striking yet unsurprising given her earlier experiences. Such fearful and arguably irrational perceptions of the other may not be atypical in the Chinese context either, where the other—either in the form of the collective authority or an individual who is higher in a strict power

[195] Becky’s Chinese original is “没办法啊,” which can also be translated in the contexts she was using to mean: “this is the way it is, there’s nothing one can do [but go along with it].”

[196] The full quotation appears earlier in the first section titled “conception of critical thinking”; for quick reference purposes, here is part of that quotation: “If you want to insist on your point of view, then I would let you be, accepting your viewpoint. I am not the kind who likes to get into heated arguments with people; therefore, if you want to insist on doing something, then let’s do it.”

hierarchy—often acts as a domineering and limiting force onto one's free will. And this view of the other seems to be reflected in Becky's conception and application of critical thinking as discussed earlier, which focused primarily on logical thinking and evaluation and missed explicit inclusion of different viewpoints that was typically mentioned by other participants.

Arguably, critical thinking beyond logical reasoning may not have played a significant role in the domain of everyday life for Becky. Rather, it was Becky's strong sense of the self—e.g., clarity in what is essential to her and commitment to what she wanted—that functioned as an effective force in protecting her inner desires from the pressures of an unsupportive external environment and in guiding her with independent decision-making in a freer new environment. As evident in her attitudinal change once she landed in the U.S., Becky's agency bounced right back and she showed sound rationality and strategic thinking in managing her study and future. In other words, the strength of Becky's selfhood raises question about the necessity of critical thinking—particularly the kind that is conceptualized more broadly to entail, beyond logical thinking, inclusive concerns for the diverse other— as a useful, if not indispensable, set of qualities and skills to be fostered through education for all. Perhaps for students like Becky, whose sense of the self is deeply grounded within rather than shaped substantially by unexamined external values/norms, they may not experience as many existential concerns and dilemmas or be affected to the same extent by contending forces and options that often give rise to decisional complexity and uncertainty. Moreover, without encountering such "ill-defined

questions"[197] or experiences, critical thinking may not be as necessary or applicable to their operation and well-being in everyday life.

Yet it may also be argued that Becky's life may not always remain as simple and free of dilemma. With her future either in China or the U.S., she may have to face an environment that is either stifling because of its stronger normative pressure or complex due to its relative freedom and diversity. This would mean that Becky would have to find solutions to retain her individuality and agency within social circumstances that she had previously found difficult to challenge and had largely resorted to evasion, or she will have to find ways to enjoy interacting with others that could make her experience abroad less isolating as she was already beginning to feel.

Arguably, in either case, critical thinking in a broad sense may be a handy tool that can help Becky to improve her experiences in the future. For example, by questioning the norms that she had previously found problematic in China and supporting her position with relevant evidence—e.g. a diversifying Chinese or local culture in which people have actually become flexible with traditional norms—Becky may find more room to negotiate with her parents or others what is important or preferable for herself. Such ability to problematize and use her voice to reason with others may be vital for her wellbeing should she move back to China. In the alternative situation of residing abroad, by examining her own assumptions of others who have strong viewpoints and of herself needing to adopt a compliant role in such interactions, Becky may take greater interest in engaging with others in ways that can broaden and enrich her understanding and experience abroad.

[197] "ill-defined questions" is a term used by educational/cognitive psychologists to refer to questions that do not yield readily to right to wrong answers or that can be dealt with simply by logical thinking. See the literature review chapter for more discussion.

Granted, such practice of critical thinking may presume a different kind of strong selfhood—i.e., one that sees oneself beyond the dynamic of “child” and “adult” or “obedience” and “authority”—from what was exhibited in Becky’s speech or thinking. It would be a selfhood that is ready not only to understand and engage with others but also to negotiate and assert one’s point of view. Luckily, Becky has retained a strong sense of the self within the intrapersonal dimension or her private sphere; perhaps, it would be a matter of expanding that to the interpersonal dimension or social sphere. In other words, Becky may be able to make this transformation or growth by integrating her existing sense of self with a stronger conception and practice of critical thinking; with such integration, her understanding of critical thinking may expand and deepen as well.

5. Group III Conclusion

The above analysis and description of Group III students demonstrates patterns of similarities and individual variations. In terms of critical thinking, these students generally showed certainty, at least initially in the online survey, in their own perception and practice of it; absent was the kind of inquisitive questioning, critique, or insight of what critical thinking is or might be that can be found among Group I students. Moreover, in spite of Group III students’ claims that critical thinking was important to them and that they used it frequently, their actual conceptions and applications displayed vagueness and partial elements of critical thinking dispositions and skills. Instead, this group of students showed a greater tendency to make generalizations and less ease with supporting claims with detailed examples or evidence.

In terms of selfhood, most of the Group III students demonstrated an other-orientation that may be manifested in a number of different forms. For example, the more voluntary form is expressed as deference or dependence on one's trusted parents or generalized "everyone else," whose knowledge and opinion can weigh heavily on one's perception and decision-making. Jiayi and Lili were, in their own ways, cases of this voluntary form of other-orientation. By contrast, the more involuntary or compulsory form is expressed as frustration or imputation, as demonstrated in Becky's case when she felt that she had to give into the various social pressures in China, or in Erick's case when he justified his detached university learning approach by stating that he was merely getting the degree for his parents—because they had persuasively pressured him to pursue the education.

In addition, along with this strong other-orientation was, on the one hand, a relative lack of understanding of oneself and recognition of one's responsibility and, on the other hand, a higher level of self-doubt and negational attitude toward oneself. Erick's self-abandoning sentiment[198] was arguably an extreme of this negational[199] attitude. Perhaps as a result, students in this group also showed a greater tendency toward being affected by the varying norms of different environments they found themselves in. An example would be Jiayi's swinging back and forth between the ideal of individuality espoused at school in the U.S. and the idea of

[198] For example, when Erick discussed his eventual decision to go back to China as his mother had wished for him: "My mother has a really wide network, which will for sure help me… [even though going] back means I lose freedom—in the media, in myself, because my mom would be constantly watching me."

[199] As explained in the previous in-depth analysis chapter, "negational attitude" is used in this dissertation to contrast "affirmational attitude" that is often found among students from other groups, particularly Group I students. "Negational" refers to not being able to affirm oneself or take one's preferences and inner knowledge into serious consideration in knowledge construction and decision-making processes. While a negational attitude does not have be a negative attitude toward oneself—i.e., disliking oneself or considering oneself to be unworthy, an extreme form can be.

practicality emphasized in China or by her parents, or Erick's drastic attitudinal change once he transferred from community college to the research university.

Becky was an anomaly case in the sense that in spite of the other-orientation she felt she had to adopt whenever she was in China, her core sense of the self was largely unaffected. She was not negational but affirmational—almost to the point of being focused only on herself—toward who she was and what she wanted to pursue. The strength of Becky's selfhood seemed to function as an effective guide for her decision-making in the everyday life. This raises questions about the importance of critical thinking and the necessity of teaching it beyond the academic domain, especially for students who are firmly grounded within and relatively uncomplicated by external notions or norms. Perhaps critical thinking is not so important for everyone or even an effective tool for increasing one's happiness, as some students in Group I and II observed. Yet as I try to explore throughout this dissertation, perhaps a broader conception of critical thinking that is also relevant for the domain of everyday life may indeed be beneficial, if not necessary, for populations like the Chinese students in this study who are leading increasingly complex, transnational lives. In other words, the particular challenges and opportunities they face as individuals in the "late-modern" age seems to call for a kind of thorough and inclusive thinking that can continuously improve the self and knowledge across domains.

Group III students, including Becky, also demonstrated varied responses of irrationality in their thinking and responses that may, in fact, reflect the greater irrationality in their respective social/familial environment. In comparison to Group I, Group III students seemed to have experienced greater negational or negative pressure from their parents, whose undoubted

parental love were, however, often manifested in forms of control that had a persuading and pressuring effect on these students to conform to the perceived norms. As a result, Group III students generally had less freedom to exercise their agency and less opportunities to learn from their own actions and experiences, which would have facilitated in the development of their confidence in themselves and in taking responsibilities. The inhibitive function of *the irrational dimension* in Group III students' stories comes to the fore, especially when it is juxtaposed with *the non-rational dimension* exhibited by students in Group I that often supplemented their critical thinking and enhanced their overall capability to understand and to grow. Often driven by prior negative experiences or fear, certain types of thinking or responses are called "irrational" in this dissertation, because they seem to impede students from trusting their inner voices or knowledge, exercising their agency, and focusing on the rational strategizing needed to realize their goals or dreams.

As the irrational elements were often expressed in implicit assumptions or internalized norms that had been taken for granted by students in Group III, the pages above also explored the relevance or use of critical thinking that can help students examine these inhibitive notions: e.g., the assumption that the collective other or resourceful authority always knows better than oneself as exhibited by Jiayi or the common Chinese phrase "this is the way things are, nothing can be done about it" that was often used by Becky whenever she discussed the social pressures back home. Critical thinking as a way of understanding the contexts within which these common notions/assumptions were applied and problematizing them in light of one's own situation may help students find more space to create their own solutions and negotiate them with others.

Lastly, as we juxtapose Groups I and III, a more complex picture of the relationship between selfhood and critical thinking seem to emerge. That is, while Group I suggests a close connection between strong critical thinking abilities and a strong/affirmational sense of the self, Group III suggests not only the parallel reverse is true—i.e., weaker critical thinking abilities in connection to a weaker/generally negational sense of the self, but also a cross-variation is possible. Namely, weaker critical thinking abilities may also be associated with strong selfhood, as it was in the case of Becky. Perhaps, not surprisingly, there is also the cross-variation where stronger critical thinking abilities is associated with weaker selfhood, as we shall see in some cases among Group II students in the following section.

Chapter 6b. GROUP ANALYSIS (II)

I. INTRODUCTION

In the previous part of this chapter, I analyzed data from Group I and Group III to show the two ends of the spectrum of students' critical thinking abilities, along with their selfhood and a "non-rational" (in Group I) or "irrational" (in Group III) dimension that seemed to have played a role in their ability to think critically. We now turn to the largest, middle group or Group II. If the entire participant pool can be demonstrated on a graph, with the X-axis representing the spectrum of critical thinking abilities and the Y-axis representing the number of students in each group, the plotting would generate a kind of bell shape graph. The two ends of the bell would represent the smaller sized Group I and Group III (with 3-4 students per group), while the large middle portion of the bell would consist of Group II students.

The basic structure of this second part of the chapter consists of this introduction in the beginning, a conclusion at the end, and the analysis section of the 4 subgroups in the middle. Due to the overall complex nature of this group—e.g., more fluctuating conceptions and/or applications of critical thinking across the domains and more conflicting or changing expressions of selfhood—the structure of analysis for each subgroup may also vary slightly. In addition, while the four structural elements used to portray Group I and Group III are there in the analysis of Group II—namely, conception of application, practice of application, selfhood, and non-rational or irrational dimension—these elements will be discussed in a more integrated way to accommodate the particular complexities of the cases in Group II.

II. Group II Subgroup 1

The three students in subgroup 1 are all engineering students (of different engineering subfields) who were doing well academically and demonstrated a strong propensity for meaning-making that was beyond formal academic requirements. That is, they were disposed to making sense of the problems and new knowledge they encounter by making discerning observations, by digging deeper into the underlying questions of “why” or “for what purpose,” and/or by connecting what they learn with their daily practice. This active meaning-making disposition is also manifested in their interest in disciplines outside of their STEM majors and in their varied perceptions of critical thinking drawn from different disciplines.

The first section of the following analysis primarily explores how each of these students—Alex, Ray, and Joanna—perceived critical thinking. Even though they exhibited different levels of confidence and articulation about their understanding of “critical thinking,” key elements of critical thinking were either explicitly mentioned in their conceptions or implicitly demonstrated in their applications. In addition, the following insights into the nature and significance of critical thinking can also be found in their reflections: i.e., the logical backbone of critical thinking in STEM vs. non-STEM fields, the essential yet often-neglected purpose that undergirds the debate-oriented structure in which critical thinking is applied in academic writing, as well as the spirit of critical thinking that would shape how an individual perceives herself and her agency in relation to knowledge and social change. The section ends with a brief analysis of the limitations of these students’ critical thinking. In comparison to Group I students, the Group II/Subgroup 1 students—who had developed critical thinking later in their education (i.e., around the later part

of high school or early in college)—seemed to demonstrate more apparent areas where their critical thinking could grow further.

The second section of this subgroup analysis explores the substantial growth or awakening these students experienced as part of an upward trajectory that they also demonstrated. In addition, along with significant self-growth was a discernable development of critical thinking that seems to have a mutually strengthening role in the maturation of these students. This interconnected, positive trajectory of self-growth and critical thinking seemed to be particularly salient among students in this subgroup, further distinguishing them from other subgroups in the relatively large body of Group II students.

The conclusion section briefly summarizes key findings vis-à-vis critical thinking and selfhood from this subgroup, compares the meaning-seeking inner qualities these students demonstrated with the non-rational dimension exhibited by Group I students, and discusses relevant pedagogical takeaways based on these students' experiences and reflections.

1. Critical Thinking Insights & Limitations

This section consists of four subsections. The first three subsections discuss, respectively, each student's perceptions and insights on critical thinking, tying their reflections to the larger literature on critical thinking whenever possible. The last subsection explores areas where these students' critical thinking capacity may be further developed, which may help to justify the placement of these students within Group II.

(i) Alex: the logical backbone of critical thinking[200]

Alex, an engineering student with an anthropology minor, drew his conception of critical thinking largely from the academic domain, particularly from his STEM training. While all of the students in subgroup 1 seemed to concur that critical thinking in their respective engineering fields consists primarily in logical and comprehensive thinking, Alex offered the most detailed reflection of critical thinking in STEM and contrasted it with its manifestation in non-STEM courses. According to Alex, *logical thinking* is most saliently present in his math and engineering homework assignments, where "we need to find the logic within a problem set and then apply concepts and equations—either preexisting ones or self-derived equations—for problem-solving…in a very structured step-by-step manner." By contrast, *comprehensive thinking* is more often utilized in larger engineering projects, where "various aspects [of a solution or design] need to be taken into consideration in relation to how each aspect may affect the operability of the whole under different circumstances—e.g., speed, level of convenience, internet availability at a particular location, and so on and so forth." In other words, even though the step-by-step logical reasoning constitutes an essential part of scientific rationality, it alone would not be sufficient for real-world problem-solving or solutions, especially in the applied fields like engineering.

In addition, noting the difference and connection between logical and comprehensive thinking as two essential aspects of critical thinking highlighted in STEM, Alex was also quick to point out that across disciplines, these two types of thinking are being emphasized to varying extents in STEM vs. non-STEM fields on the whole:

[200] Notice the structure is similar yet differently expressed from subgroup 2 with Arielle and Cindy; consider making the structural signals consistent.

> Assignments in anthropology typically consist of essay writing and question-answer responses. For essay writing, I first come up with an overarching argument and structure and then write it out with evidence by drawing upon numerous reading materials. For question-answer responses, it's also about presenting [or taking into account] everything that pertains to the question. There is a bit of this step-by-step process in writing out these assignments [in anthropology], but the steps are not as structured as those required for problem sets [in math or engineering].

The above observation indicates that while the structured and lineal logical thinking plays a more prominent role in the STEM fields, another type of thinking that centers around evidence or examples for argument construction is more salient in the non-STEM fields like anthropology. Interestingly, Alex did not name explicitly this dominant form of thinking in the humanities and social sciences as "comprehensive thinking"—the term he used for the kind of thorough consideration of different aspects required in engineering projects or designs. Yet an implicit link can be seen in Alex's accounts between the kind of thinking fostered in the non-STEM fields and the type of "comprehensive thinking" sometimes employed in the STEM fields. For example, in the initial online response, Alex wrote that critical thinking means to "think logically and comprehensively" and then enlisted argumentative essay writing with supporting evidence as an example of critical thinking in anthropology. In other words, by virtue of Alex's own conception of what it means to think critically, non-STEM essay writing as an example of critical thinking would necessarily entail logical and comprehensive thinking also.

Thus, the emphasis or balance between logical and comprehensive thinking varies among different disciplines. That is, on the whole, comprehensive thinking—or the comprehensive aspect of critical thinking—plays a more prominent role in the social sciences and humanities, even though some level of logical thinking remains as a basic denominator in all forms of critical thinking across disciplines.

In addition, “comprehensive thinking” across disciplines manifests in a number of different forms: e.g., as thorough consideration of various components or conditions that can affect the feasibility of a design in engineering; as provision of different empirical and/or textual evidence (including counterevidence) for argumentative assertions in the social sciences and humanities. At an even higher level, “comprehensive thinking” could also entail the incorporation and integration of diverse experiential and theoretical perspectives—or what some critical thinking theorists called “multilogical thinking.”

While the arguably mechanical aspect of “critical thinking” across disciplines could be succinctly encapsulated as “logical and comprehensive thinking,” it may be worth noting that the two components of critical thinking mentioned by Alex and other students could be even more effectively described in technical terms as “deductive reasoning” and “inductive reasoning.” Deductive and inductive reasoning are two types of logic or logical thinking that function, however, in reverse orders. To put it simply, *deductive reasoning* is about drawing conclusions about particular instances based on generally accepted truths or facts. For example, geometric proofs are manifestations of deductive reasoning, where established definitions, postulates, and/or theorems are used in a step-by-step manner to prove or solve individual problems. By contrast, *inductive reasoning* is about arriving at a generalized conclusion based on a set of particular evidence (e.g., observations, experiences, and/or texts). For instance, the construction of hypotheses based on empirical observations in the natural sciences or argumentative theses supported by statistical or qualitative data in the social sciences.

In light of these concepts in logic, Alex’s accounts can be understood in the following way: when describing the structured step-by-step approach to problem-solving in math and

engineering as “logical thinking,” he was in fact using “logic” in the narrow sense, i.e., deductive logic.[201] When using “comprehensive thinking” to denote a careful consideration of the various aspects within an engineering design or of the different supporting examples and evidence for an anthropological essay, he was essentially referring to inductive reasoning[202] and its varied manifestations across disciplines. While both deductive and inductive reasoning are utilized in every academic discipline, the extent to which they each are emphasized and the ways in which they each are manifested may vary among disciplines—i.e., with greater variation between STEM vs. non-STEM fields on the whole.

This pair of logical concepts can also help elucidate a number of other general observations students made about the different manifestations of critical thinking across disciplines. For example, Alex discussed with some uncertainty below whether critical thinking always entails the use of warranted evidence, along with logic, in the academic domain:

> You may not always need to have evidence [to establish your critical thinking claims]. What I mean is that if you have logic, then perhaps you don’t need to have evidence. If you are to verify something is correct, and you can prove it, then you don’t need to enlist correct examples. I am thinking of mathematics here, when writing mathematical proofs. If I am to prove a theorem, I do so by following a series of logical steps and preexisting theorems—unless those [theorems] can also be called “evidence”?....[Yet] there is still difference between the two disciplines: when writing [anthropology] essays, you would need to use examples [as evidence], which you can’t do in math. Unlike math, such arguments cannot be completely proved, so you have to use evidence for support.

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[201] Apparently, it is not uncommon in everyday language to use the terms “logic” and “deductive logic” interchangeably, as deductive logic constitutes the primary type of logical reasoning studied in the academic field of logic or formal logic.

[202] The definition of inductive reasoning or “induction” provided by *Britannica* may help to further illuminate the different manifestations of inductive reasoning—or what Alex called “comprehensive thinking”— across disciplines: “induction, in logic, method of reasoning from a part to a whole, from particulars to generals, or from the individual to the universal.” (Induction. (2011). In *Britannica*. Retrieved January 14, 2022, from https://www.britannica.com /topic/induction-reason)

In the above quotation, Alex seems to reach an impasse as he unpacks his initial assertion that the use of evidence is not always necessary for critical thinking across disciplines. On the one hand, as he later questions the concept of "evidence"—wondering whether it might be broader than what he has previously presumed, Alex seems to recognize that his initial assertion may need to be altered. That is, if "evidence" means warranted sources that support a conclusion—be it in the form of a proof or an argument—it could encompass not only the particulars (e.g., individual observations in the empirical/natural sciences and textual/scholarly materials in social sciences and humanities) but also the generals (e.g., widely-accepted theorems or self-evident postulates and axioms in mathematics). Consequently, Alex would have to submit that the use of evidence is a necessary part of critical thinking in all academic disciplines. On the other hand, apparent to him still is the difference between the ways critical thinking operates in math and anthropology or between typical STEM vs. non-STEM assignments on the whole. In other words, *how can the different operations of critical thinking be explained, if it is not due to the use of warranted evidence in some disciplines and the lack of it in others?*

Using the logical concepts of "deductive reasoning" and "inductive reasoning," the above conundrum or the markedly different disciplinary ways of critical thinking can be more effectively explained. That is, as a discipline that uses primarily deductive reasoning, what may be considered as rigorous or critical thinking in mathematics or geometry works in an arguably top-down manner: from previously accepted truths to specific conclusion about a problem or proof. In addition, by virtue of utilizing these indefeasible prior truths—e.g., unprovable but intuitive

postulate/axioms (also known as “a priori” knowledge) or proven theorems[203]—sound deductive reasoning or mathematical proofs would lead to conclusions that are certain and true or correct. By contrast, as a discipline that uses primarily inductive reasoning, what may be considered as critical thinking in anthropology operates in a reverse, bottom-up manner: from specific field observations or examples to a more generalizable interpretation or assertion. And by virtue of utilizing evidence that are particular and invariably situated in a given context—e.g., empirical observations, survey data, and/or textual analyses—even the strongest inductive reasoning can only yield to probable truth, likely prediction, or persuasive argument.[204] In other words, it may be argued that what distinguishes critical thinking in STEM fields and non-STEM fields on the whole lies not so much in that the latter requires the use of warranted evidence in addition to logical thinking and the former does not or not as much, but rather in the type of evidence used (i.e., generals or particulars, incontrovertible or contextual) along with the correlating mode of logical thinking (i.e., deductive or inductive).

Moreover, the insight of the two types of logical reasonings that arguably function as the backbones of various academic disciplines can also help illuminate a similarly keen yet puzzling

[203] An example of postulate in Euclidean geometry would be the *parallel postulate* that states “through any given point not on a line there passes exactly one line parallel to that line in the same plane.” An example of theorem, also drawn from Euclidean geometry, would be *Pythagorean theorem*, which states “the sum of the squares on the legs of a right triangle is equal to the square on the hypotenuse (the side opposite the right angle)—or, in familiar algebraic notation, $a^2 + b^2 = c^2$.” (“Euclidean geometry” and “Pythagorean theorem,” 2020. In *Britannica*. Retrieved January 12, 2022, from https://www.britannica.com/science/Euclidean-geometry and https://www.britannica.com/science/Pythagorean-theorem)

[204] Lau’s (2011) following explanation on how deductive and inductive reasonings manifest in different fields may offer further insight: “As we can see, the inductively strength of an argument can change quite radically depending on new information. This illustrates a major difference between mathematics and the empirical sciences. Mathematics uses deductive reasoning to discover the logical consequences of definition and axioms…. So if the proof is done correctly, new discoveries cannot change the proof into an invalid argument. However, science also relies on defeasible inductive reasoning…[i.e.,] Old evidence providing strong support for a theory might fail to do so when new evidence come in” (p. 91).

observation made by another Subgroup 2 student, Joanna, about the different manifestations of critical thinking in STEM vs. non-STEM fields on the whole:

> I think the kind of critical thinking that is being emphasized in STEM centers around logic—i.e., whether something makes [logical] sense or not. Once a certain path is thought to make sense, everyone would agree on this one. But critical thinking in the humanities and social sciences focuses not only on whether this path makes sense or not but also whether other paths do as well. And people may not necessarily agree on just one path, and that would be OK. Whereas in STEM, it's like being very dominant—if something makes sense, it must make sense [for all].

Joanna's reflection of her experiences in STEM and non-STEM courses seems to suggest that different disciplinary trainings may foster different epistemological attitudes—from the more accepting stance to diverse perspectives and solutions in the social sciences and humanities to the more "dominant" or absolute approach to answers as either correct or incorrect in STEM. Using the pair of logical concepts, the seemingly attitudinal issue may be better understood as a natural result of epistemological differences. That is, as the various academic disciplines are conceivably grounded on different combinations or emphases of inductive and deductive reasoning, they also generate different levels of certainty vis-à-vis their respective knowledge claims. Consequently, people tend to agree more in the STEM fields, where deductive reasoning is more often used in the knowledge construction process, along with a body of widely-accepted facts or truths from prior research development. By contrast, people typically agree less in the non-STEM fields, where knowledge is understood to be largely contextual and interpretational, shaped by a large number of interrelated factors—e.g., evidence, perspective, theoretical lens and disciplinary methods used in the research and writing processes. Thus, for students to develop a nuanced and advanced epistemic position in which one would be both committed to pursuing the better truth or knowledge yet remain active, or at least open, to exploring

alternatives, it would be necessary to encourage a balanced education that entails trainings across disciplines and that explains more explicitly the different types of logical thinking or methodology undergirding each discipline.

(ii) Ray: the purpose of critical thinking

While Alex's discussions above highlight the logical backbone or mechanics of critical thinking, Ray's reflections below explore a bit deeper into its philosophical origin and undergirding purpose. The angle in which Ray viewed critical thinking seems to have stemmed from his experiences in writing courses, which had informed much of his understanding on how critical thinking should be applied, and from his puzzlement about this "quite extreme" practice that called for a meaningful justification.

In his online and in-person responses, Ray consistently described critical thinking as "dialectic," by which he meant the following: "By discussing a problem from two opposite sides, people can perceive the problem better and achieve a better intermediate solution (if possible)." In other words, Ray understood critical thinking as a method with a purpose: i.e., for better understanding or problem-solving via considering two contending sides. Relating to this cognitive dimension, Ray also mentioned repeatedly a necessary interpersonal dimension in the application of this method: it should be used to focus on issues not to target people who have a different or opposing view. Ray's conception of what critical thinking entails and how it should be practiced is arguably unusual in its philosophical reference and precautionary emphasis.

Aware that critical thinking is not typically explained as dialectic, Ray explained that much of his initial understanding on this topic was drawn from his experiences outside of formal

education and reflection on what seemed to him to be a puzzling and problematic practice of critical thinking at school. In the following quotation, Ray described the kind of critical thinking that he was actually exposed to, drawing largely from his experiences in writing courses:

> My understanding [of critical thinking as dialectic] may not be correct, but this is how writing is done in my experience since high school: there're always two sides to a given topic—at least this is how all the instructors I have encountered taught, though not all instructors may teach in this way. For example, on the topic of abortion, there are the side that supports it and the other against it. You must choose a side and your paper should not discuss [positively] viewpoints from the opposing side.[205] They call this kind of writing critical thinking or something like that…. If you are asking whether someone has given me a definition, I don't think I've ever gotten one. But they consistently explained that essays or critical writing should be done in this way. So naturally, through all the writing assignments from ESL and regular English classes in high school to GE courses in college, I gathered that this is what Americans mean about critical thinking or critical writing. You can apply some conditions to the choice—e.g., whether abortion should be permitted or not in voluntary or involuntary (i.e., rape) situations—but you must choose a side and write in a way that unfolds and supports it.

In other words, Ray's formal education only provided him with the first half or the structural part—i.e., two contending sides of an issue or social controversy—of what he came to perceive as critical thinking or how it should be. Neither the purpose of this thinking approach nor how it can be used in a fruitful and constructive way were explained, according to Ray, by instructors who fostered this form of critical thinking.

It may be worth noting that Ray's reflection on how he learned—or, more accurately, picked up—critical thinking seems to reiterate a common description by other participants of their learning process of critical thinking in school. That is, via an implicit or subconscious association between the instructions they received about how to write or approach a topic and

[205] In other words, even though positive or concurring discussion of the opposite side may not be permitted, negative or "flaw-finding" (in Ray's word) analysis of the counterargument would be allowed, for it could be used to further strengthening one's own position.

the reference to critical thinking they heard in the same course—which often happened to be writing courses or writing-focused GE courses.

It may also be worth noting that most of the participants did not describe their critical thinking in writing exercised in quite the same way (i.e., choosing and arguing for one of the two opposing sides), even though a similar but more moderate notion was frequently mentioned of having an argumentative position or central thesis supported by sub-arguments and evidence. In other words, most students did not seem to experience critical writing as a binary choice between two opposites but a formulation of an argumentative position that allows for subtleties and complexities. However, in Ray's case, who immigrated to the U.S. during high school and had thus more exposures to writing courses in different school settings than most participants, the impression of critical thinking or writing as argumentation for one of the two opposing positions seem to have been strong and consistent. Indeed, if we consider the notion of education in the U.S. as preparation for students who will become future citizens of a democracy with legal rights to vote "yes" or "no" on policies or propositions, it may not be so surprising that courses that discuss social issues or controversies would set up discussions or writing assignments in this particular format as Ray described.

While Ray seemed to have largely accepted this binary practice as a potentially legitimate approach that is ingrained in the American culture—which he referred to as "a debate culture"—he also observed problems in its application. The following quotations capture some of the encounters Ray experienced where discussion of opposing ideas or sides went awry and hurtful:

> For example, a person at the lab where I worked once got into an argument with me. I may have been mistaken initially, but that person contended why I was wrong for various reasons…as if he had to persuade me right on the spot that his answer was correct. I did agree with his answer after I had some time to think it over on my own, but he adopted

> this grudging look towards me after that. Somehow he couldn't seem to realize that when you are discussing something with others, you can't insist on them that what you say as wrong must be wrong. You have to give others time to process their thoughts. [Similarly,] it's not like if I am against abortion and he is for abortion, we are then necessarily enemies. At the end of a discussion, do we become enemies or can we still retain a cordial feeling toward each other as friends? In any case, I think critical thinking is a way for discussing issues—the target is on the issues not the persons [who happen to disagree].
>
> Once I wrote a course paper [in community college] on minimum wage, arguing that it is good to raise minimum wage. Then an older Indian student who wrote a paper against it confronted me, questioning how I can possibly think in this way and asserting, as if in a combative argument with me, that my position had no merits. Yet to me, I was only writing a paper on the topic as a toy example or practice, yet he argued as if the possibility of raising the minimum wage is completely out of the question. I felt he was shifting from discussion of a topic to personal attack. From my perspective, if you can't tolerate other people's points of view, then you are approaching the discussion in a wrong way, going against what is meant to be.

Ray's account(s) of these intellectual-turned-interpersonal or discussion-turned-domination encounters seem to suggest the argumentative format of approaching issues with two opposing sides can strengthen a binary mentality of right or wrong, leading to a more combative and even harmful dynamic among people, and effectively halt communications or discussions that could lead to better understanding. Years after such emotionally-charged encounters, Ray still seems to be processing them: e.g., he would enumerate a number of these instances together in a response, or he would, as demonstrated elsewhere in the interviews, recall snippets of such experiences even when the topic may not be immediately related.

Even though such memorable experiences may have also prompted Ray to reflect with greater necessity the undergirding rationale or justification for this argumentative practice espoused in school, Ray did not seem to make this connection as such. Rather, as he explained in the following quotation, it was the binary or "extreme" characteristics of this approach that raised question for him:

> I haven't heard any teacher explaining it [the rationale], but I thought about why we write in this way—to perceive a given issue by two ends—for wouldn't that be going quite extreme. Then it occurred to me that the purpose is for us to see things in a more comprehensive way. So I thought this would better explain or make sense [of why we write or argue in this way].

The quotation seems to suggest that the unusual or unbalanced nature of this approach, compounded with a lack of explicit explanation, was sufficient for Ray to be curious of its legitimacy. Yet it may still be argued that it was most likely the combination of problems at both the conceptual level and the practice level that propelled him to reflect critically of the kind of critical thinking he had been taught to do. As will become even clearer in the following sections that in a parallel way, it was also a confluence of explorations at the conceptual level and experiences at the practice level that seemed to have provided Ray with the inspirations to perceive or reconceptualize in a way—without perhaps being explicitly aware of revamping—"critical thinking" as dialectic or in his own terms.

For example, believing that his understanding of critical thinking was developed gradually over the years (i.e., from high school to college), Ray felt that numerous factors came into play. In addition to the type of exposure in school, he also mentioned a number of other contributing factors: his own propensity to think, the greater amount of free time he had in the U.S. to reflect, and fortuitous experiences and resources that had an impact on his thinking without them being labeled or perceived as critical thinking at the time. One of such experiences took place in China, as captured in the following quotation:

> In my first year in high school, there was a news story about a wealthy young [driver] who accidentally ran over someone on the road and then killed the victim by stabbing her eight times....At the time we had to write a weekly journal, so I wrote a reflection based narrowly on what I had read in the media, much of which revolved around the injustice and moral sin committed by the driver. Perhaps many students wrote about it as well, but the teacher only read out loud one essay written by our class president. Interestingly, the essay did not aim at how bad

> the driver might be as a person but provided a comprehensive analysis of the incident. I immediately felt the gap [between the ways we interpreted] was quite big. And gradually as I thought more about it—including shortly after that I came to the States and learned how to write here—I came to develop this sense.

By "this sense," Ray meant the realization that one should focus on gaining a better understanding through comprehensive analysis rather than judging too quickly and attacking the character of the person involved perceivably on the wrong side of the event. And the difference between these two approaches as perceived through the high school experience seems to have provided contrasting models or options for Ray on how he would wish to develop his thinking style. In other words, earlier experiences as such may have shaped Ray's appreciation for thinking that is comprehensive and balanced. Understandably, when he later became the receiving end of targeted attacks during discussions or critical thinking exercises, it was important for him to highlight the interpersonal or attitudinal dimension of how critical thinking should be practiced. That is, try to maintain a respectful, if not cordial, dynamic among people by focusing on conjoint understanding and by restraining from harsh judgments and character attacks.

As for the reference to "dialectic" in his conception of critical thinking, Ray mentioned that he had drawn that word from *Sophie's World*—a novel that essentially introduces major ideas in Western philosophy through conversations between a fictional character called Sophie and a philosopher. Ray said he found the book after some research online, prompted by his curiosity about philosophy in general and by his puzzlement about the practice of critical thinking at school. Although Ray did not provide details from the book that had further his understanding of critical thinking, a brief survey of the book indicates that "dialectic,"[206] particularly Hegelian

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[206] "Dialectic" (also known as "dialectics") in western philosophy is a method of logical discourse in which a better hypothesis or claim—i.e., with closer proximity to the truth—is ideally formed out of two contending positions. There have been many forms of dialectic, beginning with the ancient Greeks, such as the Socratic method (or "elenchus")

dialectic, is explained in an accessible, albeit abbreviated way. The following quotations demonstrate some of such explanations:

> Anyone studying history in depth will observe that a thought is usually proposed on the basis of other, previously proposed thoughts. But as soon as one thought is proposed, it will be contradicted by another. A tension arises between these two opposite ways of thinking. But the tension is resolved by the proposal of a third thought which accommodates the best of both points of view. Hegel calls this a *dialectic* process. (p. 360)

> But Hegel's dialectic is not only applicable to history. When we discuss something, we think dialectically. We try to find flaws in the argument. Hegel called that 'negative thinking.' But when we find flaws in an argument, we preserve the best of it. (p. 362)

The quotations discuss "dialectic" in terms of both its conceptual details and practical relevance. While the first quotation on Hegel's notions of opposites—as known as "thesis" and "antithesis"— seems to echo the version of critical thinking that Ray had been taught in school, the second quotation appears to provide a rationale for why this method can be useful toward

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as illustrated in Plato's early dialogues. In the Socratic dialogues, the interlocuter, who represents one position, would make a knowledge claim about a given topic (i.e., a fundamental concept like justice, piety, or love). Socrates, who typically holds a different position (though often stated in the negative—i.e., he does not have knowledge but wishes to learn from those who believe they have it), would question the claim by examining a set of related, background assumptions that the interlocuter also holds. As a result, internal inconsistencies within the proposed answers would surface, compelling the interlocuter to revise the initial claim and ultimately give up in recognition of his actual ignorance about the topic. In other words, the dialogues typically end without the kind of intended answers—i.e., definitions that convey the truth and can thereby reshape beliefs—by which people organize their lives. However, the Socratic method is demonstrably potent in raising questions about common beliefs or claims that have been taken for granted; it is also pedagogically effective in stimulating the more curious minds to search for greater understanding.

Although Hegel saw Socrates or Plato as the predecessor to his own work on dialectic, they differ in a number of important aspects. The Hegelian dialectic, for example, assumes a stronger tension or opposition between the two sides, and the two sides constitute ideas rather than people in dialogues—which as Hegel critiqued: "Plato's dialectics deal only with limited philosophical claims and is unable to get beyond skepticism or nothingness" (Maybee, 2020). In other words, the Hegelian dialectic also anticipates a positive answer or "synthesis" can be developed out of the opposing sides—i.e., "thesis" and "antithesis." An accessible example from *Sophie's World* explains the Hegelian dialectic in the following way: "say that Descartes's rationalism was a thesis—which was contradicted by Hume's empirical antithesis. But the contradiction, or the tension between two modes of thought, was resolved in Kant's synthesis" (p. 361). In other words, Kant's philosophy can be seen as a creative and unifying amalgamation of rationalism and empiricism. Such a synthesis or improvement would, however, also become a thesis over time, when a contending idea or anthesis that disagrees with Kant's philosophy or aims to improve it comes to the fore. Examples of such perpetual revision and search for better knowledge seem to be abundant in the history of philosophy and ideas.

better understanding. In other words, through his extracurricular exploration, Ray probably made a connect[207] between critical thinking and dialectic as its philosophical origin and gained a deeper understanding of how dialectic/critical thinking works and why it is important—i.e., when it is used in a constructive way, as considering or experimenting with different ideas. It can be thus argued that Ray's conception of critical thinking as dialectic is an improvement, or "synthesis" in the Hegelian term, upon what he had learned in school with the insights gained elsewhere via his own effort and utilization of informal learning resources.

While this strengthened understanding for critical thinking as dialectic may have permitted certain ease in which Ray felt about debating or considering opposing opinions—i.e., as mere ideas or metal exercises rather than his true convictions—this arguably removed approach to intellectual activities is not without its own controversy or antithesis. For example, feminist scholars Belenky et al. (1997 [1986]) contended that academia or higher education has traditionally cultivated this removed approach, which they called by variedly as "separate knowing," "disinterested reason[ing]," and "procedural knowledge." Drawing upon female

[207] Interestingly, even though the link between critical thinking and dialectic seems to be never very far from the surface (given their shared origin in the Socratic method), dialectic is not often mentioned in the critical thinking literature. Perhaps the lack of extensive discussion is in part due to the philosophically dense works associated with dialectic, expounded by some of the most difficult and prolific philosophers: e.g., Kant, Hegel, Marx, in addition to Plato and Aristotle. In addition, educational theorists, particularly the earlier ones, who have spurred the present interest in the critical thinking since the 1980s seem to have drawn upon a different line of philosophical tradition—i.e., analytical philosophy that is most popular in the U.S. and Britain and that pivots toward logic and positivism—rather than continental philosophy in which dialectic plays a central role. Yet as Ray observed, there is a strong sense of a debate culture—whether in the U.S. or elsewhere in the West, in classrooms or politics—where two sides are presumed to be engaged in a contest or argument as a necessary or helpful pathway for furthering understanding and informed decision-making. In other words, the notion of moving forward via wrestling with contending ideas is prevalent in western culture. With the growing interest in the various branches of continental philosophy—e.g., postmodernism, neo-Marxism, critical theory—in the English-speaking world in the more recent decades or 21st century, perhaps a closer link will be forged between dialectic and critical thinking.

students' experiences—a perspective that was often neglected at the time— these scholars illustrated the problems with this way of knowing, while recognizing its potential benefits:

> Procedural knowledge is 'objective' in the sense of being oriented away from the self—the knower—and toward the object of knower seeks to analyze or understand…. Although this selfless aspect of procedural knowledge is its glory, some women began to experience it as alienation…. They felt as though they were answering other people's questions, and they could not make themselves care about the answers. (p.123-124)

The quoted description of "procedure knowledge" echoes Ray's account about defending or writing a paper on a position opposite to what one believes. While such practice entailing a certain amount of "self-extrication" or "taking an impersonal a stance as possible" (109) may lead to "self-alienation" and intellectual indifference—i.e., when practiced in a monotonous and habitual way—it can be a helpful mental exercise or thought experiment, as Ray reflected, that forcibly broadens one's thinking and understanding. Taking into consideration of both points of view, it may be argued that there is much value in being able to *temporarily* detach from one's own opinion and seriously consider the other side as if it were one's own.

As mentioned in the literature review and theoretical framework chapters, intellectual equanimity and openness as such was emphasized in Dewey's concepts of education as communication—and vice versa—in a democracy.[208] That is, the two sides of the communicative interaction would undergo "an enlarged and changed experience" (Dewey, 2012 [1916] p. 8) and their understanding and actions would be modified in light of the new perspectives from one another. In other words, without perhaps knowing much about Dewey's work, Ray's reconceptualized conception of critical thinking shares a similar vision in believing that this

[208] The link between Dewey's concepts of "communication," "democracy," and "critical thinking" is expounded in detail in the literature review chapter.

method of thinking and discussion can further knowledge as well as fellowship among people for the improved understanding they each obtain because of the other.

(iii) Joanna: the spirit and relevance of critical thinking

If Ray's conception of critical thinking arguably extends Alex's logic-centered version of it by exploring its intellectual origin and purpose and highlighting its interpersonal dimension in practice, Joanna's following description seems to expand Ray and Alex's scope and relevance of critical thinking further by explicating its transformative power for both intrapersonal growth and social/sociopolitical change.

Like Ray and many other participants (STEM or non-STEM majors), Joanna also drew her conception of critical thinking largely from experiences in non-STEM courses. Likewise, her description of critical thinking skips or immediately moves beyond logic, which is perceived by her and others as basic but partial, and perhaps not even the most essential, aspect of what it means to think critically. The following quotation captures her perception of critical thinking:

> I think critical thinking is manifested primarily as independent thinking. They would emphasize a lot what you think rather than things that you may have heard. In addition, critical thinking is also about—[a point that is] related to independent thinking—not merely accepting what you hear, just because it comes from an authoritative source or something. If you take things for granted, you wouldn't then be ready to challenge it.

Joanna's description points, right away, to "the spirit of critical thinking," as some theorists and study participants have called it. This attitudinal view differs from Alex's that center largely on its technical or logical aspect; it also differs from Ray's that still emphasizes the cognitive or intellectual aspect of its purpose, albeit along with the proper interpersonal dynamic that is probably indispensable for the purpose. In Joanna's version, critical thinking would be more

than logical thinking plus comprehensive thinking; it would also entail having the freedom to exercise one's mind and courage to express oneself in moments of contending truth-claims. In other words, there are stronger intrapersonal and interpersonal (i.e., extending even to the sociopolitical) dimensions to Joanna's conception of critical thinking, rendering it a distinctive way of thinking and being.[209]

Also to note in the quotation above is that by "they," Joanna was referring to two undergraduate courses that had made a strong impact on her critical thinking development—one was a two-quarter writing series and the other was a gender studies course. In the following quotation, Joanna explains further how these courses fostered, in different ways, her critical consciousness:

> I think the writing courses focused more on you as an individual—i.e., stuffs that are very personal—which helped me to reflect on myself. In comparison, the *Gender and Power* course prompted me to reflect on the society, like what has the society done to me, prompting me to think in a particular way presently or be in a certain situation. In other words, they would prompt me to reflect—or more accurately, to think more about the relationship between the individual and society or collective consciousness, something like that.

[209] According to the study participants, the notion that one should be ready to "challenge" authority or authoritative claims—as a part of critical thinking—has to be practiced in a more nuanced and complex way in the Chinese context. Even for participants like Joanna who were generally confident and assertive about their examined opinions, the extent to which they were willing to delve into a controversial topic or express their contending positions depended significantly on the situation or person with whom they interacted. Abiding the Chinese cultural norms, students would typically not contend with or challenge those who are more senior in the power or generational hierarchy—"out of respect" and/or "for a lack of interest or relevance," as Joanna put it. Such contextualized or selective attempts at expressing oneself may seem weak, contrasting sharply with the more consistent and even unyielding actions that perhaps associated with a fearless critical thinker (e.g., Socrates being perhaps a paradigmatic example). Yet such recognition among students like Joanna, that one should *ideally* be able to think for oneself and challenge authority when necessary—i.e., even when it cannot be carried out "all the way" in every situation—may bear significance. As Joanna reflected of her evolving response toward gender difference when she went back to China for visits: "Now that I have this awareness, whenever I find this or that [existing practice or norm] not right or that I don't agree with, I find myself more inclined to engage with others in this kind of [persuasive] discussion." [Perhaps move the thematic chapter]

The intrapersonal/self-knowledge and interpersonal/social-awareness dimensions of Joanna's learning and growth come to the fore in her description of the courses that have also fostered her critical thinking. Moreover, the two courses seem to have worked complementarily, providing Joanna opportunities to understand herself "in a new way": i.e., as an individual with a special set of attributes and experiences *and* as a social member invariably situated in and shaped by the world around her.

Elsewhere in the interview, Joanna added that the exposure to critical thinking as "independent thinking" through course reading, textual analysis, and reflective writing helped her to recognize and exercise her agency in shaping herself and the world around her. For example, recall Tim's (in Group I) imagery of a person exercising critical thinking as a tree extending its roots and crown. Joanna's reflection below echoes Tim's in that it also highlights the vital importance of independent or critical thinking in facilitating her choices and solidifying her sense of self:

> I think it's [i.e., critical thinking] really about independent thinking. That is, in everyday life, we accept too many ideas and opinions from others—which, of course, serve an important function, as we formulate our own ideas with reference to others'. Yet I think to truly possess the ability for independent thinking, one has to be able to choose among the myriad of information [or ideas those are right for oneself].

In another instance, Joanna also mentioned that the knowledge she gathered from the *Gender and* Power course (e.g., women's suffrage movement) prompted her to understand individual power and responsibility in making the world a better place. More specifically, after realizing from her coursework that using one's voice and providing feedback has been "a very important element in the making of continuous progress," Joanna said that she had been "very active in participating certain events" that were within her capacity and that could make a positive

difference. Although the participatory actions Joanna had taken at the time may seem small, such as offering real-time pedagogical feedback to instructors and responding to course evaluation requests, her motivation to be a socially committed and responsible individual was firm and clear: "unless you express your opinions and provide feedback, the other side—including teachers and others who may be able to help—would not know what you want, and your rights and interests would not be ensured."

In other words, what Joanna was able to gather from her course experiences described above was a robust understanding of critical thinking as a powerful mechanism, with influence that extends well beyond the academic domain—i.e., it is also indispensable for individual maturation and social change. And along with this understanding and practice of critical thinking, Joanna also seemed to have gained a strong affirmation of herself or grounded sense of self, as a more mature and independent individual who has reflected on her experiences and examined the responsibilities and values she choose to embrace.

Yet Joanna's insight did not stop at providing a holistic view of critical thinking as a way of thinking and being. While recognizing that critical thinking plays a vital role in a healthy democracy, she was also able to see and extend its relevance to polities that are not typically considered democratic. For example, in the following quotation, Joanna explains how critical thinking may also play an important role in the Chinese context—i.e., via shaping the collective consciousness or culture in China, which would in turn influence its policies:

> I think the relevance of critical thinking is even more obvious in American society [than in academia], because people here need to vote. If you don't have critical thinking, your vote could be easily dictated by what politicians say or propagate—and that could have grave bearings on the future of this country (chuckling). So I think it is very important for them. Of course, it is important for people in China as well (chuckling again). [Why is that so?] It's kind of analogous to voting here, even though there isn't a formal setup for

> people to vote. Yet I think it is possible for individual behaviors and opinions to converge somehow and create a collective effect. Therefore, if people of a group—the size of which can range from a few people, to a few dozen of them, to an entire country—do not think critically on the whole, the kind of decisions they make collectively [or policies invariably shaped by collective opinions of the public] may be quite poor. Such decisions may not always be political. For example, people in a village[210] may have to make a decision on about whether to protect a local river or divert its water for a paper mill nearby. Depending on the kind of general opinion shared by the group, it can shape the decision [made at the top, by local leaders or officials in the village] in a positive or negative way. Therefore, the individual effect is important, for it may [converge and] influence the quality of the entire group.

Joanna's assertion suggests that just as independent/critical thinking can help to support a democracy via strengthening the way its citizens think and vote, it can also make a difference for societies like China where citizens do not yet have as much political power but have, nevertheless, collective/social power to shape politics and policy. In other words, Chinese citizens also have a certain kind of sociopolitical agency—albeit in more limited or less direct way—that they can tap into: i.e., by exercising and strengthening their thinking individually that may eventually forge into a strong public consciousness or culture collectively.

Joanna supported her assertion with her observations at the village level, where local officials "cannot but take into consideration the opinions and demands of the people" who are also their neighbors or relatives. She then inferred that politicians at the national level, though more removed from local lives, also operate within the larger culture or collective consensus which they share with ordinary citizens. Seen from her insight, fostering critical thinking is arguably important in a universal way—for societies across the political spectrum, because it shapes the way people think and the quality of their decision-making at the micro and macro

[210] Although Joanna grew up in the city, she had some familiarities with life and politics at the village level, due to her father's work as a government official and familial tie to his ancestral village.

levels. While citizenry agency without correlating political apparatuses (e.g., voting rights and freedom of speech and protest) to support and protect it may invariably be limited, Joanna's insightful observation about the universal appeal of critical thinking nevertheless offers a potential pathway that can empower individuals to act across various types of political systems. And this grounded understanding of how social change and progress is forged via the power of associations among people in everyday life dovetails with Dewey's vision of democracy as "primarily a mode of associated living, of conjoint communicated experience."[211]

Joanna's incisive perception of critical thinking and its significance across nations and cultures clearly went beyond the provision of the courses that had arguably given her the exposure to this way of thinking. After all, almost all participants in this study had taken similar courses in writing and/or in the social sciences and humanities, yet most did not seem to extrapolate so much insight from there about the self, the society, and the role of critical thinking in the development or progress of each. Granted, the courses Joanna mentioned may have been taught particularly well or their topics and knowledge content were especially relevant to her experience and needs at the time, which might have contributed to her rapid absorption and growth in terms of self-knowledge and critical thinking practices. Yet, Joanna's personal characteristics, such as her perceptiveness or "meaning-making"/ "writer's" nature (as she quoted of a teacher's description of her) clearly played a significant role in her ability to grasp and articulate both complexities and subtleties.

[211] See the literature review chapter or Xie's (2020) article for a more detailed explication of Dewey's conception of democracy and its radical emphasis on the social rather than the political.

As will be further explored in a later section, it will become more apparent that Joanna's perception of critical thinking as an independent-spirited enterprise that can empower both the individual and the collective is likely to have been shaped by her selfhood and upbringing that already fostered similar values—e.g., independence, social responsibility, and search for meaning and happiness.

(iv) Room for further critical thinking development

Just as the three students in subgroup 1 had varied insights about critical thinking, they each also showed different areas where their critical thinking could improve.

In Joanna's case, even though her conception of critical thinking drew largely from her learning from the social sciences and writing courses, her disciplinary training as an engineering or STEM student seemed to have invariably defined some of the ways she practiced critical thinking. For example, in response to the list of critical thinking skills and dispositions that I asked all students to review, Joanna pointed out that she does not often ask clarification questions or definitional questions. This may in part due to the nature of the STEM fields in general, where statements are typically succinct or clear and definitions prescribed or commonly accepted. Therefore, as Joanna reflected, her questions typically focus on the whys and the hows—"details or reasonings" for something that works—and the subsequent steps or "logical connection between points" once a definition is given. While inquiries into the clarity of assertions and definitional claims may not constitute, for the most part, a relevant part of undergraduate training in critical thinking in the STEM fields, such inquiries can be vitally important in the humanities and social sciences. Granted, it was not clear, given our limited encounters, to what

extent the lack of asking for clarification and definitional question was true in Joanna's practice of critical thinking across disciplines—i.e., beyond STEM fields. Nevertheless, it may still be worth noting the varied relevance of these questions in different fields and domains, so that a way of practicing critical thinking that is likely to be sufficient or suitable for one discipline or domain is not being assumed to be so in another.

A more general and perhaps significant limitation in her practice of critical thinking was, in fact, observed by Joanna herself, as illustrated in the following quotation:

> As a Chinese, my critical thinking has really not sunk in such a subconscious level. I would, for example, automatically want to cite a study if you tell me that it comes from a well-respected scholar or university. But when I describe this study to my boyfriend [who is an American], he would point to this or that [laughing], listing all the contrary cases he could think of. Some of what he said made sense to me, but others did not. Yet I would notice in our interactions how apparent his subconscious habit was for uncovering discrepancies within a claim. Sometimes it would really annoy me, because I would find a point is already quite obvious, so what is there to interrogate about. But then he would contend, just because it was published by this [authoritative] person, it may still be biased or something like that.

In other words, there was a gap between Joanna's actual practice of critical thinking and her conception of it—which highlights the ability to think independently for oneself, so that one does not take claims for granted and would be ready to challenge existing information or authoritative sources. Yet it may be argued that given the fact that Joanna had noticed the gap on her own and implicitly interpreted as a matter of being able to think critically at a subconscious or automatic level, she might remind herself to practice it more frequently so that it would become a second nature to her over time. And this training to improve herself and internalization of what she believes—i.e., after examining it on her own—to be good or better seem to be a regular part or extension of Joanna's critical thinking practice that we will further explore in a later section.

In Alex's case, even though he observed some key points in the application of critical thinking in the academic domain (e.g., the components of logical and comprehensive thinking, the varied manifestations of critical thinking in STEM vs. non-STEM disciplines), they were articulated in a general way as separate elements rather than interconnected as an analytical whole that has obvious explanatory power. Granted, such level of analysis or understanding of critical thinking would take a conscious and strenuous effort, entailing research into concepts in logic that may be only necessary for theorists and educators of critical thinking. Yet, as Alex himself pointed out—in his generally thoughtful and meticulous way—that his understanding of critical thinking has remained uncertain or vague.

The minimum explanation and reference to critical thinking he received in formal education may have played a role. According to Alex, he has "hardly heard the concept being mentioned in all my [university] courses." Yet, like all other students in this study and in Subgroup 1, Alex had taken basic writing and GE courses, in addition to courses in his Anthropology minor.[212] Somehow similar courses that have much to be gained vis-à-vis critical thinking for

[212] Alex's statement on the lack of reference to "critical thinking" in his anthropology courses was particularly intriguing to me, for the academic discipline itself seems to center around exploring the other—other cultures, perspectives, and practices—that constitutes an essential part or attitude of critical thinking. Curious about what the discipline might be teaching in terms of critical thinking, I skimmed through parts of a peer-reviewed textbook accessible online called *Perspective: An Open Invitation to Cultural Anthropology*, sponsored by the Society for Anthropology in Community Colleges, a section of the American Anthropological Society. What I found was that while the exact word "critical thinking" is indeed rarely mentioned in the book, partial and indirect references to the concept are aplenty, especially in the early introductory chapters. Such references may be expressed, for examples, in the following ways: "anthropologists are encouraged to engage in self-reflection—to examine their roles, engagements, practices, and objectives critically, known as reflexivity" or "one might conclude that what changed least was what scholars in 1929 called 'the anthropological attitude,' which values both detachment and involvement as a mode of rethinking assumptions." While the way in which "critical thinking" is mentioned or not in this textbook alone may not represent how anthropology courses are generally taught, much less perhaps how Alex experienced it at his university, it does seem to offer a more nuanced explanation or response to Alex's account. The book confirms Alex's assertion, on the one hand, by showing that direct or exact reference to the concept "critical thinking" may not be frequently used or explicitly explained; it complicates Alex's assertion, on the other hand, by also demonstrating varied references to the idea of critical thinking—e.g., "self-reflection," "reflexivity," "rethinking assumptions"—is in fact deeply important to the anthropology as a field of knowledge about humankind. Yet it is

students like Joanna did not seem to leave much impression on Alex in terms of his understanding of critical thinking. His description of critical thinking, even in the personal domain, remains narrowly focused on logic. Even his logic-oriented key insights seems to have been based on his initial exposure in high school, where "critical thinking" was introduced vaguely as thinking that is logical and comprehensive—something that had initially seemed almost pointless to Alex, for he thought "that was how everyone already think."

Yet, as the next section will demonstrate that in practice, Alex was as significantly impacted, if not more, as Joanna was by courses that had explicitly or implicitly fostered critical thinking. The difference was perhaps while Joanna had no problem perceiving the course content—i.e., knowledge that had transformed her way of seeing herself and her relation with the society—as part and parcel of the whole package called "critical thinking," Alex seemed to have assumed critical thinking to constitute primarily, if not only, its logical or methodological aspect. In other words, there seemed to be room for Alex to broaden and deepen his conception of critical thinking, which may likely strengthen his practice or ability to guide others to a way of thinking that has benefited him in a transformative way.

By contrast to Alex who has yet to broaden his conception of critical thinking or Joanna who may need more practice to make critical thinking a second nature, the area where Ray's critical thinking can develop further seemed to lie elsewhere. On the one hand, Ray seemed to

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also possible that while Alex could have connected the dots more through reflection on the various references to the concept of "critical thinking," even the indirect or partial reference may be rare in the more advanced anthropology courses—as it seemed to happen in the later chapters of the textbook—where the focus shifts from explaining the critical, anthropological perspective more generally to discussing the actual anthropological research findings in a more specific and technical way. Perhaps there is a tension between criticality and technicality prevalent to various academic disciplines—i.e., as the discipline invariably becomes deeply invested and confident in its particular perspective or way to knowledge production, it may also spend less time critiquing, justifying, or even explaining the nature, the strengths and the weaknesses of its own methodology.

recognize enough of the limitation in the existing teaching and practice of critical thinking to reconceptualize his own—i.e., that brings back the "forgotten, neglected, or deviated original intention" of critical thinking/dialectic in helping to forge better understanding. On the other hand, he also felt that it was not up to him to share his position or critique in a more public way—e.g., "challenge it" as a problematic, albeit authoritative, practice that was highlighted in Joanna's conception of critical thinking.

The following quotations capture this tension between Ray's understanding of the right or better pedagogy (which differs and contends with the existing practice) and his perception of his role as a student (whose role is to learn and comply):

> If a teacher tell you the correct approach to it—[i.e.,] the aim for writing [one of] the opposing sides is not just to argue but to gain a more comprehensive view of the issue—and if we can practice in light of this original intention, it would have been a good way towards understanding.
>
> [Have you encountered this kind of situations in your writing, where you start with one position, but after considering the other side carefully and realizing that it also make sense, you feel like your initial position is modified?] Often. But I can't write it like this [laughing], because if I concur that the other side is indeed right, it would damage [the persuasiveness] of my position. My instructor[s] would say, if you find something good about each side, you can't write it all in one paper; if you like, you can write a separate paper to support the other side, but you can't write it in this paper—it would weaken your central argument. [Do you agree with that?] That's what they say about how academic paper should be written—there's nothing I can do about that. My community college professors and ESL teachers all said this. [But doesn't this approach differ from the dialectic approach you mentioned earlier?] I know. How can this be explained—perhaps this type of writing is only one way [or mode of expression], but thinking is however you like to think. You can [i.e., in your thinking] maintain both sides or support one side. Since they instruct this writing approach, we as students should abide by it.

The quotations seem to suggest that in Ray's mind, the tension is resolved by separating thinking from writing or by the belief that one's expressions/actions do not have to be a natural or consistent extension of one's thoughts. Such belief or separation between critical thinking and

the expression of such thinking (or critical expression) is not uncommon among Chinese students in this study, nor in the literature on Chinese students' critical thinking (see literature review chapter). Perhaps the belief or understanding that one is freer in the more private world of thoughts and more constrained in the more public world of expressions and actions is even a prevalent or universal human phenomenon. Yet nevertheless the gap between thoughts and expression also seems to vary among individuals, with the gap being generally smaller in those who—by innate characteristics and/or congenial environment—feel more secure to express themselves.

In Ray's case, his reservation about expressing his critical thoughts seemed to have stemmed from two sources that may in fact go hand-in-hand: i.e., his generally respectful or deferential attitude toward authority *and* his arguably individualistic orientation toward how common challenges or problems should be coped or solved. For example, in the second quotation above, Ray takes for granted that he as a student should essentially follow the writing approach instructed by his teachers. Even though it had become clear to him—after further reflection and extracurricular exploration—that the existing approach may not be properly guided or may be deviating from its original intention, he still tried to rationalize the missing pedagogical piece by stating, as he did in one interview: "perhaps they [instructors] might find this [i.e., the purpose of assuming opposing sides] is already quite obvious that no explanation would be necessary." Granted, it is common for students to feel compelled to abide by teachers' instructions—out of the necessity for getting good grades. However, there appears to be a substantial difference between students who would attempt, or at least express such a desire, to communicate their divergent ideas to teachers (e.g., Joanna) and students like Ray who did not

seem to have yet developed their agency or confidence in asserting themselves in face of authoritative figures.

In addition, this intrapersonal/interpersonal difference is expressed not only in terms of we approach authorities—i.e., in a deferential or assertive way—but also with regard to how we view shared social/educational problems—i.e., from an individualistic or communal perspective. Throughout the interviews, for example, Ray conveyed a few times an individualistic attitude, which was expressed either directly—as by the phrase "this is not my business"— or indirectly—as in the way he defended himself for not challenging the norms for academic writing as he had experienced it and found it problematic: "I can't be sure if others got it too, but at least I got it; I developed my current thinking out of this training."

Yet this defense seems to be expedient rather than substantial. This is because the first part of this defense—claiming that he was not sure if others have understood critical thinking in the more substantial way that he had—seems to contradict with another observation he made elsewhere in an interview that "even though it is a very simple idea [i.e., that one should practice thinking of both sides of an issue and target on the problem rather than people with the opposing view], I think many people haven't grasped it." In addition, the second part of the defense—purporting that what he had received from formal education vis-à-vis critical thinking was sufficient—seems to be a retraction from his earlier statement. That is, his *understanding* of critical thinking as dialectic, which differed in a subtle but significant way from his *exposure* of it via academic writing, was gained largely from his own reflection, extracurricular reading, and other sources outside of the formal "training" at school. In other words, in the line of defense, Ray tries to justify his position not to challenge the existing practice or pedagogy of critical

thinking by stating that he was alright with it, since he was still able to figure out the missing part—the meaning or purpose undergirding the otherwise combative or “extreme” practice. While Ray was certainly speaking from his own experience, his statement of defense also conveys an individualistic idea that it is up each individual student to pick up what may be learned from school. And this idea appears to align with his other general views, such as people are different and some are innately more reflective than other and would thus be able to develop more understanding.

Granted, it is important to develop and emphasize individual responsibility, as an expression of agency, in taking charge of one’s learning even when the educational environment or pedagogical approach may not be optimal. Granted also that demarcating one’s boundaries or scope of concerns is common and necessary for all individuals, as we have limited amount of time and energy. However, the greater frequency in which this individualistic perspective was expressed by Ray did stood out, though by no means unusual, among the participants. Moreover, this individualistic emphasis contrasts sharply with the more balanced view conveyed by Joanna, who was both affirmational about her limitation and boundary when it comes to how much she could realistically channel her energy on various social causes *and* committed to doing her part in making positive and necessary social changes.

It may also be worth noting that while Ray’s individualistic approach can be used conveniently as a defense to ward off inconvenient engagement with larger social/educational issues, it may also have prevented him from developing critical thinking further in certain areas. For example, if Ray had allowed himself to expand the scope of his concern from the intrapersonal/interpersonal to the sociopolitical domain, he might recognize that the kind of

unpleasant and judgmental experiences he had with some of the fellow students may not be a few stand-alone incidences but rather a reflection of a larger issue with the way in which politics and news media is also conducted—i.e., in an often combative and binary way that seemed to have sowed further division rather than cohesion. Situating his own experiences in the large social context, Ray might also recognize—while maintaining the position that such argumentative practices are a part of the culture that has its own history and reasonable rationale—that the way in which thinking and writing has been taught and practiced may have been part of the cause and the problem. Consequently, Ray might also identify the gravity of the educational problem he has experienced and realized: i.e., to be trained to see issues in terms of opposing sides yet not guided for its ultimate purpose in forging together a better synthesis or understanding. With this fuller and more connected comprehension of the problem and its significance, Ray might even feel more compelled to resist or address it in a more vocal way. In other words, Ray has room to further develop his application of critical thinking in a way that his thoughts and expressions can be more aligned—or as the more recent critical thinking theorists would advocate, a stronger form of critical thinking would entail committed actions as an extension of critical thoughts for social change or improvement. For this further critical thinking development to happen in Ray's case, it seems that his intrapersonal perception of himself—his responsibility and agency—and interpersonal perception of his relation to the other and authority will also need to be expanded.

2. Awakening & Upward Trajectory

In spite of the limitations in their conceptions or practices of critical thinking, students in this subgroup also demonstrated clear signs suggesting a positive trajectory toward further development in their ability to think critically. For example, Joanna was self-aware that that she has yet to develop the practice into a second nature or automatic response, replacing her habitual tendency to accept claims based on their apparent authority rather than examined merit. It may be argued that based on this self-awareness, along with her dedication in consistently improving herself, it is likely that Joanna will continue to strengthen her practice of critical thinking in a way that further aligns with her conception of it as independent thinking.

In comparison, Ray was less forthright about the limitation in his critical thinking practices; however, when push comes to shove, he was also open to reconsidering contending positions. For instance, in our subsequent discussion on the possibility of thinking in one way and acting in another, Ray responded "of course," adding that that "perhaps what one can derive from critical thinking may be quite useless" in terms of making a difference in the real world. One of the examples he enlisted to support his claim was a popular Chinese talk show that was shut down due to some of its liberal-leaning social commentaries. Clearly upset by the government intervention, Ray added, however, that "no matter how people discuss it online, it won't change the status of the show." While this observation about the limitation of thinking and discussion under unfavorable social or political circumstances may be true, his following generalization in support of his claim about critical thinking seems to suggest more of a skeptical attitude about the power of thinking and individual agency that may have been culturally habituated[213] rather

[213] Similarly skeptical view seems to be especially prevalent among the older generations in China who have experienced harsher periods of sociopolitical tumult and censorship.

than consciously examined: “Or let’s take another example—writing an essay supporting or going against abortion. You spend time completing the assignment, but it doesn’t change the world other than providing training for your mind.”

Yet in spite of this seemingly strong position held by Ray—perhaps as a further defense for his preference not to challenge authority with contending views—he was also quick to consider alternative possibilities. For example, I asked him to consider an opposite view similar to that proposed by Joanna: i.e., perhaps ideas or discussions among people based on critical thinking may have a gradual and long-term effect on the culture and norms of a society by first opening the mind of each individual, much like sowing seeds that would take time to germinate and grow into visible forms of change. To this challenge, Ray responded with a hearty smile, partially admitting to his potential limitation and partially continue to defend himself:

> That’s true. I know, as an engineering major, I am more focused on things that bring immediate results. But I think it may be possible [that discussion or critical thinking isn’t entirely futile in making actual changes]. Yet [for that to happen], there’s a probability issue; therefore, it’s hard to say for certain. So in this sense, I think [critical thinking] is perhaps still more for the training of the mind.

Even though Ray seems to try hard to maintain his original position or parts of it, his response also demonstrates an openness to fair alternatives. There are also other reasons to believe that his thinking on this matter or others will further evolve: his propensity to think things over on his own, his recognition in the value of opposing or different points of view, and his belief that “change is perhaps the only thing that doesn’t change—it is what helps one to continue improving.”

In addition to the awareness or openness to the possible limitation within their critical thinking practices, another indication for a likely continuation of critical thinking development

among subgroup 1 students is their upward trajectory of self-growth. The following three subsections provide detailed analysis of *what* this positive growth trajectory looked like in each of these students' cases and *how* their critical thinking and selfhood functioned in a mutually strengthening way in their overall change and development.

(i) Ray

For example, Ray said that "the most conspicuous change" that has happened to him in the past few years was the way in which he perceived others—not simply in binary terms as good or bad, depending on how they treated or mistreated him. A poignant case he mentioned was his changing perception of his father who had been aggressive and demeaning toward him:

> Both of my parents did not receive high level of education… my father, who does not know much about my major thinks negatively of what I am studying. In his mind, since I am using the computer all the time, I am just playing games; he believes that online addition will ruin my life. [Have you mentioned to him about careers in Silicon Valley?] I told him many times; he said you are too dumb, Silicon Valley is for people who are really smart. Well, he is that type of parents—quite discouraging.

Luckily for Ray, his mother had been a constant source of support and trust in his capability. While feeling naturally more protective of his mother and reserved toward his father in times of familial disputes, Ray said that he no longer saw her as just the good person and him the bad one. [Alt: he said that he no longer thought everything said or did was right and his father saw]. Through closer observation, Ray realized that neither has his mother always told him the truth nor has his father always told him lies. And in spite of his father's unsupportive attitude toward him, Ray recognized that it may not have been good or fair for his father that during disputes, he (Ray) had always sided in favor of his mother.

It may be worth noting that this shift of perspective in terms of how he understood his parents and others was described by Ray as examples of critical thinking application in everyday life. When I asked him to explicate how critical thinking played a role in this changing perception, Ray responded: "It's about seeing both sides first, then can you proceed to discuss the right vs. the wrong—because most of the things are not that absolute…neither are people." In other words, Ray has adopted or transferred his conception of critical thinking as dialectic from the academic domain to better understanding in the personal domain. And practicing critical thinking as such in the personal domain as he would in the academic domain, Ray tried to understand his father from his (father's) logic and background—i.e., as a man deprived of good education and fortune and limited by what he could grasp of the society from his menial jobs. Moreover, seeing his father in his own context seemed to have contributed a sense of calm and balance for Ray about their relationship. That is, Ray continued to be cognizant of the irritability of his father's temperament and the negative role model it had created for him, on the one hand; he also began to develop a more accepting and empathetic understanding of his father, on the other hand, that would probably help them as a family.

While the impact of critical thinking on the development of Ray's selfhood—i.e., expanding the way he could better relate and cohabit with others—seems clear from the discussion above, the reverse—i.e., the influence of selfhood on his critical thinking—is also evident. Recall discussions in the first section on how Ray formulated his conception of critical thinking as dialectic, which gave the initial combative format he learned at school a deeper meaning. In the formulation of his particular understanding and practice of critical thinking, Ray's personal characteristics and dispositions seems to have played a significant role, particularly his

propensity to exercise the mind, his desire for meaningful pursuits,[214] and sensitivity to positive role models that illustrate open and connected discussion toward understanding. Arguably, because of these individual qualities that constitute his sense of self, Ray searched and learned from sources—e.g., books, talk shows, fellow students' points of view—that eventually inspired him to develop a more interconnected critical thinking practice of his own.

(ii) Joanna

The mutually strengthening connection between selfhood and critical thinking can also be observed in Joanna's case. Before an explicit analysis of this connection, however, let us consider also a significant change Joanna experienced in her upward trajectory of self-growth.[215] This empowering change grew out of a challenge that is in fact common among Chinese students abroad: the question of how to choose one's major. Like a good number of students in this study, Joanna was initially overwhelmed by the task of choosing a major toward a long-term career path, as she explained in the following quotation:

> I should say it in this way: even though I didn't quite realize it then, I really had no idea about how to decide on a career path in the first two years of college. Somehow subconsciously, many options were eliminated in my mind. I think this is because throughout my education in China, the idea that there are many different career options was never introduced to us. We were only told a few that everyone believed to be the best, the most lucrative, and the most promising, while ignoring many others. So it never occurred to me at the time that environmental protection can be a career option.

[214] Ray's Chinese original for meaningful pursuits was "更高的精神追求," by which he mentioned the values of equality and liberty, the courage to challenge authority when necessary, and/or the pursuit of one's inner direction or wishes—in contrast to the predominant focus on practical benefits and monetary gains that he felt as the driving force for many people's career and academic choices.

[215] An arguably even more significant change in Joanna's growth trajectory is a shift in becoming more "feminist" and affirmational of herself as a girl. Due to length consideration for this subgroup analysis, this change is described in the section on female Chinese participants in the next chapter.

While having a limited knowledge of available career options is certainly a contributing factor to the choice problem, the intense uncertainty students experienced seems to have stemmed from something deeper and more difficult. Recall the dilemma Jiayi experienced (in the in-depth case analysis chapter), there was in fact a battle between whose authority one should follow—i.e., one's own (manifested in one's genuine interest or passion) or the others' (conveyed as the collective opinion or dominant trend).

In many ways, Joanna also experienced a similar dilemma undergirded by these contending forces which are emphasized differently in the two different geopolitical spaces and cultures that most transnational Chinese students like herself and Jiayi have to navigate. Joanna's description below captures what they commonly expressed about this cross-cultural challenge:

> I think when it comes to guiding you on choosing a future path for yourself, teachers and [others in] the society here give more emphasis on choosing something that you are passionate about. But in China, there would be too many, you known, all the reasons but the right one. They would say, choose this because this makes more money and/or it is less stressful. My mother who still thinks in this way: when I told her that I wanted to become an engineer, she said that this is too taxing for girls, or she would say it will make harder for you to get married, things like that.

Yet unlike Jiayi and others who felt torn by the pulls of conflicting authorities and unable to satisfactorily resolve the dilemma by the end of their college years, Joanna seems to have struck a decisive position as reflected in the quotation. That is, following one's passion—the approach more widely espoused in the U.S.—is the way to go.

As clear or natural as this shift to self-authorizing may seem in Joanna's case, as the above quotation (collected in her senior year) seems to suggest, it was a struggle for her as well. According to Joanna, this back and forth internal debate and sense of uncertainty was especially prominent in her first two years in college, as she constantly asked herself "what is the thing that

I'd be willing to dedicate my entire life, that I'd be willing to do even if it doesn't bring me a lot of money?" And it was only in the last year or two that she stopped caring about external opinions of what is desirable and began to feel grounded and happy by pursuing a major/career goal that she really cared about.

Interestingly, the source she noted explicitly for helping her make the shift was a novice dance group on campus that she had joined in her junior year. In the following quotation, Joanna explained how the experience gave her a strong impetus to finalize her choice that she had been considering for a long time:

> I should mention, when it comes to this event [changing major], that one pivotal experience was this dance club that I had joined. Because in the dance club, while everyone really enjoyed dancing, we all come from different disciplinary backgrounds… It made me feel that you don't have to limit yourself within your discipline or do things only within your field. You can do whatever you want; you are more than one thing. That experience was really inspirational for me—it prompted me to do what I want.

Joanna's description of what she was able to take away from the experience highlights, once again, her perceptive and observant mind that seems to have enable her to pick up cues from her environment and experiences that further supports her "cho[ice] to become the person I wish to become." At the same time, her process in becoming a more affirmational and independent individual also suggests the importance of positive environment and associations—for much of the informal learning toward self-growth may be done by the living examples one encounters. The diverse group of peers at the dance club, each different yet thriving in areas they were passionate about, seems to have given Joanna the courage needed to emerge out of her uncertainty and embrace her individuality and passion as well.

In addition to the dance club experience, there seem to have been two other sources that have also contributed to Joanna's self-affirmational change: first, her practice of critical thinking

that was developing around the same time as she was making her decision to follow her passion; second, the guidance from her father since her childhood that seemed to shaped the core of her selfhood which she would come to embrace in a more conscious manner.

The ability to think critically played a pivotal role in Joanna's growth trajectory, because critical thinking as she understood it from the courses discussed earlier meant *independent thinking*—i.e., a shift of focus toward what *she* thinks rather than what *others* think—and *connected or situated thinking*—i.e., understanding of herself in relation to others or to the world in time and in different sociopolitical and historical contexts. According to Joanna, the practice of such thinking through classroom discussions and writing exercises supported her exploration of the self, which then provided her with "a new understanding" of herself as an individual with characteristics and experiences uniquely her own and with responsibilities for herself and the society that both shapes her sense of self and can be reshaped by her actions. Such recognition of her selfhood and agency also prompted Joanna exercise her power towards making changes within herself and in her environment. Seen in this light, the challenging shift to follow her own passion or authority was another manifestation or instance of this exercise of her agency that had been strengthened by the exposure and practice of critical thinking. In other words, while the peer support or role models certainly provided inspirations and encouragement for her to make that decisive change, the development of her ability to think for herself and to act on her examined beliefs also played an indispensable role in helping her navigate through a state of limbo that developmental psychologists have called "the cross-road stage."[216]

[216] Explanation of the developmental stage is described in the theoretical framework chapter.

At the same time, it can also be argued that without the earlier upbringing or consistent guidance from her father, Joanna may not have understood and practiced critical thinking in the same way as she did in those courses and beyond. Many participants had also taken similar types of writing or social science courses that had made such an eye-opening difference for Joanna, yet almost none seemed to have picked up so much as Joanna did in terms of developing critical thinking, strengthening her sense of self, and expanding the scope of her social/sociopolitical concerns. Delving a bit deeper into her familial dynamic, it seems apparent that the values emphasized by her father might have provided Joanna the foundation, or what she called "the preliminary form," for these later developments. Joanna's following response, for example, indicates that her father had played an important, albeit less direct or obvious, role in her eventual choice of following a path that she was passionate about:

> [Why is it so important for you to pursue a major that is aligned with your passion?] Perhaps this has to do with how I define what is valuable—that is, I really hope that I can become someone who can benefit the society and, at the same time, who is also happy…. [How did you come to have these values?] I actually don't know [laughing]. [Did it start in China?] Probably not, although there might have been a preliminary form… Oh, actually, in my family, my father would really emphasize on me becoming a useful person to the society, and he would also stress on me being happy, healthy, and determined to bring about the things that I set out to do.

In other words, the values instilled by her father for doing something personally and socially meaningful gave Joanna the initial idea for pursuing a career that has a higher purpose other than merely providing her with practical benefits. While such values may not have been in the social mainstream for her while growing up in China, they aligned with the more internally-driven emphasis on one's passion and thoughts as well as the more socially-engaged stress on individual agency and responsibility that Joanna found in her experiences abroad.

It may be further argued that these formative values from her father facilitated not only Joanna's eventual pursuit of something she was passionate about but also her ability to absorb from the courses a rich understanding of critical thinking as an important tool for personal and social progress. The following quotations further suggest the extent of her father's influence on developing her own thoughts and on expanding her awareness:

> I feel grateful toward my dad, because ever since I was quite young, we would have these long conversations. Looking back at it now, what I was saying might have been very childish, but my father would really make an effort to communication with me.
>
> My father would often tell me things from the village, whenever there's something going on there. He's been making an effort to connect me with this village [laughing], so that I would be aware of what's going on…. He thought one shouldn't forget one's roots, so he's been emphasizing things like you should know where you come from.

The quotations indicate that the concerns for the individual and the collective wellbeing were already there for Joanna—carefully cultivated in her upbringing and long before she consciously recognized them as such. And these early education, informal yet invaluable, may have enabled her to not only pick up so much from courses that encouraged both internal examination of the self and external examination of the society, but also develop a rich understanding of critical thinking that highlights the intrapersonal and interpersonal/sociopolitical dimensions.

At the same time, it is also important to note that her father's influence seemed to have been one of several significant forces that were shaping her thinking and development. As Joanna reflected on her growing up experiences as a girl in China, she was inundated not only with dominant values that emphasized self-interest and practical gains but also additional pressure to strive in a more prescribed way as a female. In other words, without her later development in critical or independent thinking abroad, along with her exposure to role models and associations that espoused independence and passion, the early shape of her selfhood or

"the preliminary form" cultivated by her father may not have been able to emerge as successfully as it did at the crucial moment when she needed to make the important decision about her future pathway. In short, Joanna's case demonstrates an intimately intertwined and mutually beneficial relationship between selfhood and critical thinking: just as Joanna's selfhood—including natural propensity, upbringing, and experiences—facilitated her critical thinking development, her ability to think critically also helped make choices and become the person she wanted to be. Together, critical thinking and selfhood seemed to have forged into a powerful joint force that may continue to propel her development as an increasingly more independent, connected, and confident person.

(iii) Alex

The most dramatic case of change among the subgroup 1 students seems to be Alex, whose transition—i.e., from a nerdy STEM student, largely uninterested in affairs of the world, to a thoughtful individual with a vision for greater human connectivity—may be best described as a process of awakening and transformation. Having added an unlikely minor in anthropology in the latter half of his junior year, Alex was probably in midst of this transformative process by the time we met for the first interview at the beginning of his senior year. Within the short span of two interviews, conducted half a year apart, there were considerable changes in terms of how and what Alex articulated about himself and his relation to the world. In other words, by the second interview, more changes had unfolded or emerged in Alex's language and demeanor, in his intrapersonal value (more internally defined and meaning-oriented approach to happiness),

interpersonal connection (more extroverted approach to social connection), and sociopolitical concerns.

The most obvious indication of Alex's transformation and its initial awakening stage seems to be the process that had led to his anthropology minor late into his college career. According to Alex, for the first year or two in college and before that in high school, his interests were limited to his major, along with a few quotidian pleasures of life—food, drink, and leisurely entertainments. As he recalled, "I almost never thought about things like that. Was it because I wasn't interested in it? It's not that; it's just that it never occurred to me before." In other words, his life up to that point had been straightforward and simple; it did not occur to him that there was much to think about outside of his academic work and credentials, which he did pursue with due diligence. Yet somehow this mode of simple or scripted existence changed for him by the end of his sophomore year, as he began to wonder vaguely what it is that he wants to do with the disciplinary training he has received. While Alex was not sure what had exactly prompted this questioning desire, he thought—as other participants mentioned also—that it might have been a natural part of maturation: "perhaps as you grow older, you'd naturally think more." When we discussed his academic experience abroad, however, Alex concurred that having received a nearly perfect GPA in his major and not having to worry about his academic performance after his first year, probably gave him the confidence and time to reflect on things he would not have otherwise thought about.

One concrete source of inspiration that Alex referred to several times was a bestseller titled *Sapiens: A Brief History of Humankind* by Yuval Harari, which he picked up by chance while making an order on Amazon. Encountering this book in the early part of his junior year, at a time

when he had just begun to wonder about the larger questions of meaning and purpose, was instrumental in directing him to explore questions and knowledge that he had not been interested in before. More specifically, the book introduced some key ideas that Alex had previously taken for granted, such as the notion of happiness. The argument from the book, as he recalled it, was that things that one gains or losses (e.g., prestige, money, or promotion) cannot ultimately define one's level of happiness, because after the initial sense of elation or depression, people adapt to their situations as their feelings reach a plateau and become stabilized. Following the persuasive reasoning of the argument, Alex naturally reflected on the norms or common practices that had defined his earlier pursuits, as captured in the following quotation:

> I am not sure if the argument is entirely right, but just the idea itself—when I first read it, it really blew my mind, as I had never thought of it in this way. Yet when I come to think of it, perhaps most people also haven't given much thought on this topic; we live our lives assuming that if we can have these things [e.g., wealth], we would feel very happy in life. Then I thought about it in this way, and I began to wonder whether the original notion of happiness might not hold.

In other words, the contrast between how humans might actually operate in terms of happiness (highlighted in the book) and what people normally believe or value as happiness (manifested in common practices) seems to have effectively awoken in Alex with a pivotal realization. That is, in spite of his numerous years of education and academic success, he "might actually know very little about [him]self and the world." Consequently, as he later pursued an anthropology minor, Alex had two questions in mind: one was engineering related—i.e., the question of *what* to make, distinguishing from the *how* question that he had been rigorously trained as an engineering major; the other was immediately personal—i.e., the question of what would make him truly happy or, as Alex put it, "how to direct my life." As we shall see later in the analysis, the two

questions—of work and of happiness— point to the same set of existential concerns and desires for meaning; and the answer Alex came up at the end of his senior year would address both questions.

Yet in spite of the initial awakening and concrete action of exploration via expanding his knowledge and interests, the Alex in the first interview still seemed to be largely embedded in the habits and mindset of his former self, contrasting substantially from the personhood he exhibited in the second interview. In other words, the second and perhaps deeper indication of Alex's transformation lies in the manifestations of some drastic changes within him that took place between the span of two interviews or half a year.

In the first interview, Alex often responded to questions in a noticeably slow and effortful manner, as if he was not used to articulating his thoughts verbally or unsure about the ideas and concepts he was expressing. For example, in spite of his thoughtful observations of the different manifestations of critical thinking across disciplines, his voice frequently turned into a questioning mode or the pronunciation of the last few words of a sentence were particularly slow—dragging out one syllable at a time—as if he was doubting what he heard from himself or the accuracy of his own assertions. In addition, Alex also seemed to struggle with describing ideas and feelings in concrete terms. For instance, while attempting to explain a number of memorable novels he had read by African-America authors, Alex could only state vaguely that they had left him with "some strong impressions" on issues of race and ethics.

This observable lack of ease or familiarity with verbal articulation during the first interview was echoed by his own reflection of himself in other situations, as captured in the following quotation:

> So this is something that has occurred to me before, though I am not certain if it is true… but I seem to be a different sort of person when I am speaking in English.... I feel more natural when I am speaking Chinese but more self-conscious when I am speaking in English. I would be more sensitive, like think over more of the things I say. And sometimes because I can't quite express ideas as well, I appear to be more taciturn. [Is this a language issue?] Not sure. Perhaps language is part of it, but more often, it would happen even when I have no problem with the actual language.

In the quotation, Alex describes himself being more self-conscious (i.e., concerned or worried about the things he said or would say) and consequentially more reserved as a person in an English-speaking environment. Language, particularly informal usages in everyday language that were less familiar to him, is thought to be a contributing factor—but not the only one or even the most important factor. As Alex would later come to recognize more of his personal traits through a course study, he said that being "a rather extreme introvert," he did not enjoy speaking growing up, particularly in front of adults (i.e., those who wield more power in the Chinese context or cultural hierarchy).

This introversion or preference for less engagement rather than more with others was also manifested in the following quotation where he compared the everyday social environment in China vs. the U.S. in the first interview:

> I am more used to the Chinese social environment—in terms of how people interact with one another on a daily basis, even the way people behave in the supermarkets feels more familiar to me. There are definitely some differences between the two sides. For example, the ways people interact in supermarkets or with waiters/waitresses at restaurants are differ in the U.S. and in China. In Chinese supermarkets, people are usually indifferent to one another, but it feels very normal; 'indifference' may not be the right word, but it's like people are just minding their own business. By contrast, I feel compelled to say 'thank you' more often here [in the U.S.], and it feels a bit strange at times, because I didn't have to act this way before.

Clearly preferring the way people in China associated with one another in casual public spaces, Alex had a hard time adapting to the new social environment in the U.S., in spite of his initial

interests in bonding with American students. Perhaps aligned with his overall introversion, Alex's attitude toward this social and cross-cultural challenge also seemed passive, especially in comparison to the active approach exercised by Joanna who was more extroverted and socially confident. According to Alex, even though he would like to see improvement in his social life or sense of belonging abroad, he said that "since I don't know how, I just let whatever will happen happen" and "since it didn't bother me that much, I just got used to it." Interestingly, these perception and attitude would soon change substantially.

In the second interview, Alex was noticeably livelier in his language and manner. His unsure and self-conscientious smiles gave away to hearty and happier laughter; he was clearly enjoying the interview and conversing about ideas, as his speech became more rapid and more voluminous. These observable transformations concur with Alex's own description of the changes he had noticed of himself. That is, over the half a year between the interviews, he was able to speak and interact with domestic/American students more naturally and easily; the social awkwardness that he mentioned in the first interview was largely gone. Alex felt that the change took place without him trying anything intentionally, though the larger amount of anthropology courses he took and the different course format—more class discussions and writing assignments—were likely to have contributed to his growing familiarity and confidence with expressing himself.

Moreover, it was not only the pedagogical style but also course content—knowledge and perspectives arguably grounded on critical thinking within the disciplinary framework—also played an important role in Alex's change. Two anthropology courses Alex mentioned in

particular seemed to have shaped his changing perception of himself and relation to the world: one on the evolution of personality and the other on social change in contemporary China.

The course on China initiated Alex's thinking in the sociopolitical domain, because he began to take interest in the Chinese news and politics in ways that he never had before:

> I didn't know much about the Chinese community party or government before and never thought about the fact that China is a one-party system, while the U.S. has two parties… but now I would start to think. For example, I saw a piece of news that was circulating recently in the social media about the NRTA [the National Radio and Television Administration] or something prohibiting the production of a TV series that explores issues of homosexuality. I would think about why the government did this kind of intervention, what might be the underlying motivation, such as concerns for social stability. Whereas before, I was never interested in what's in the news or politics, which might have something to do with my upbringing in China. I think the environment was perhaps created in such a way, so that people won't take interest in politics; and because of a lack of interest, they also won't question.… But now when I see the news, I would think about what I am seeing.

According to Alex, such thinking in the sociopolitical domain did not happen immediately for him, i.e., when he was taking the course. Yet in spite of his habitual perspective that "many things are not necessarily relevant to me," Alex said that in the aftermath of the course, he could not "control myself from thinking…because I can now think." In other words, in an environment that encouraged thinking and provided concepts and ideas that stimulated questioning, Alex found his thoughts unfolded naturally. And the thoughts or kind of thinking he described in the quotation above is clearly critical thinking, because it asked underlying rationale or reality behind the appearances (e.g., the apparent monotonous official news may be undergirded by a political motive for control citizens' thinking and actions). Even though Alex's general attitude toward the Chinese government remained largely filial—i.e., focused on understanding and accepting, as one would toward one's family or parents, rather than criticizing and resisting—he was beginning

to develop a more complex and balanced view in which issues of the sociopolitical domain had become closely relevant to him as an individual citizen, now able to think.

In comparison, the strong impact of course on personality was immediate for Alex. He was "constantly thinking" about the personally relevant ideas discussed in the class and long after the course was over. He would also begin to "see things through the [evolutionary] lens highlighted in the course," which prompted him to reflect his own personality and others within the broader knowledge context of "why we behave in certain ways and how we come to acquire certain habits in the evolution process." In the following quotation, for example, Alex describes how the course material on neuroticism helped him manage his self-conscious feeling and anxiety in social interactions that was particularly apparent in the less familiar English-speaking environment abroad, as mentioned in the first interview:

> Some scholars have defined "neuroticism" as something like a [heightened] level of sensitivity to negative emotions. In a way, everyone experiences some level of such sensitivity or worry when speaking with others—wondering whether oneself or the other has said something wrong and then worry a lot about it. [From an evolutionary perspective,] people think in this way is because of an earlier time, when people lived in small, like hunter-gatherer, societies. If you do something wrong to others then, you would be ousted and that meant almost certainly death. So being more worried, even when it seemed unnecessary, was better than being less worried. So in light of this perspective, I was able to better control myself—talk myself out of thinking too much or being overly worried sometimes.

The quotation suggests that by framing his self-conscious worries within the larger historical or evolutionary context, Alex was able to grasp the socially-constructed, malleable nature of his own emotional responses. And this realization, which he referred to as a possible application of critical thinking for "manage[ing] his emotions," seems to have offered Alex the necessary cognitive and psychological flexibility for reducing the habitual anxiety he had felt in unfamiliar social interactions.

A more extensive and positive change in Alex's interpersonal dimensions seemed to have been stimulated by another topic discussed in the course: introverted vs. extroverted personalities. According to Alex, an "extroverted" person is someone who is more sensitive to happy emotions and gratifications from external stimuli, such as good food, rapport with others, and higher social status; consequently, such an individual is more willing to work hard to attain these rewards. By contrast, an "introverted" person takes less joy out of these external stimuli or rewards; as a result, he/she is also less interested in making an effort and more prone to find things "troublesome." Recognizing from the pair of personality descriptions that he is probably "strongly introverted," Alex realized that he would, in fact, like to become a bit more extroverted, because "I realized that it might actually be a good thing: if people say a bit more to one another, relationships might become more harmonious or something like that." In the following quotation, Alex describes how he takes actions in "forcing" himself to become more extroverted:

> I used to discuss only my paper with the TA and then just say 'bye' and leave, because that was who I was—someone who didn't like to say much. But this time, I tried to strike a conversation by saying a bit more about myself and by asking the TA about himself [or herself]. I tried to adjust my feelings, especially in the beginning, such as making myself feel happier and smile first before going to the office. And when I was there, I paid more attention to the connection with the [TA]…. So you can say that I was pretending to be more extroverted, but I also believe that it is actually a good thing. That is, to be able to connect with people better and reduce the distant feeling, even though I'm still essentially an introverted person, who is not easily into things.

The almost theatrical description of himself in adopting the more extroverted expressions or behaviors demonstrates a kind of courage and agency for change that was largely missing in Alex's accounts in the first interview. In other words, as his exploration and knowledge deepens after the initial awakening, Alex no longer practices the habitual yet passive approach of "whatever will happen will happen;" rather, he makes a conscious effort to step outside of his

comfort zone and expand his selfhood by experimenting with an alternative mode of being that he has come to appreciate.

Perhaps the new yet rewarding experience of interacting with others in a more relaxed yet engaged way, along with course knowledge that expanded his understanding of himself and others, contributed to the answer that Alex was able to provide in the second interview vis-à-vis the questions that he had been exploring:

> [You mentioned that the book *Sapiens* had stimulated your thoughts on happiness.] I am still thinking about this question, and I would still use that [the argument on happiness in the book] to justify my decisions…such as choosing to make things that would give me inner satisfaction rather than that are merely popular, lucrative, and successful for expanding a company enormously. [Have you found the things that would give you this inner satisfaction?] I've thought about it, which is that I want to do robotics. Of course, robotics is only a technical and general field, so I am not yet clear on the specifics of what I will make. However, I think what is really meaningful is human connection—the warmth or something that you can gather through interactions with others. If I can make something that can enhance this, I would feel quite happy and satisfied.

Alex's answer to the intrapersonal question of happiness also addresses the professional question of *what* to make he has been wondering about as an engineering student. The two questions are inextricably connected for him, with this newly minted notion of happiness adding a sense of meaning or purpose for the more technical training he has received through his major. This internally defined notion of happiness centering human connection rather than material or social status was "a big change" for him, considering much of his high school and early college career was dedicated to pursuing conventional success or happiness. And as a result of this internal development, Alex said that he no longer paid as much attention to school ranking or getting the perfect grade; rather, he has turned his dedication "to different sort of things—things that I find really meaningful." In other words, by the end of his senior year, Alex seemed to have gained the guidance that he had hoped to find through his exploration and minor in

anthropology—i.e., on *what* to make and on *how* to direct himself in terms of his emotions and happiness.

Arguably, critical thinking in the form of knowledge and perspective played in pivotal role in Alex's eventual transformation in the various dimensions—intrapersonal, interpersonal, sociopolitical, and even his verbal expressiveness—as analyzed above. Recall Alex's conception of critical thinking discussed in the early part of the subgroup analysis: it focused on the logical or mechanical aspect of critical thinking. By contrast, his transformative process as evident in the second interview suggests that knowledge based on critical thinking or research within the disciplinary framework (e.g., anthropology) provided him with the kind of understanding that empowered him to perceive differently about himself and others, which then enabled him to take actions toward changes and improvements. While critical thinking and knowledge expanded Alex's sense of self in a significant way, it may also be argued that Alex's quest for such knowledge in the first place was shaped by a selfhood that was sensitive, observant, and prone to reflect—especially in a supportive environment that encourages such traits. In other words, as it was the case for Ray and Joanna, Alex's trajectory of change also demonstrates a mutually strengthening relation between critical thinking and selfhood.

3. Conclusion

The analysis above of the three subgroup 1 students offers a rich description of the nature, function, and practice of critical thinking in higher education. Moreover, their conceptions of critical thinking demonstrate both *variety*—each highlighting a particular aspect or angle by which critical thinking can be perceived and discussed—and *complementarity*—as if

dialoguing and adding to the breadth and depth of one another's understanding of the subject matter. For example, Alex's perception of critical thinking focused its most basic and mechanical aspect, which is logic or the logical backbone of what it means to think critically. However, delving a bit deeper into Alex's seemingly piecemeal descriptions of the logical components of critical thinking, it became clear that he was making a subtle but important distinction of the different types of logic—i.e., deductive vs. inductive logic—that are emphasized and manifested to varying extents across disciplines. Such detailed focus on logic was rare among students in this study, yet Alex's observation shed light into the varied logical backbones of critical thinking that undergird different disciplinary knowledge productions and that may influence the epistemic attitudes of students who major in the different disciplines.[217]

By contrast to Alex's model of critical thinking, which pivoted toward its manifestation in STEM fields, both Ray and Joanna's conceptions were drawn largely from non-STEM fields, such as writing/humanities and social science courses. Theirs highlighted noticeably different aspects, i.e., the underlying intellectual purpose and the meaningful personal and socio-political dimensions, that are also indispensable to the practice of critical thinking. Ray's conception of critical thinking as *dialectic* was a response to the potentially combative and divisive format in which critical thinking has been practiced in his experiences with writing assignments. By trying to make sense of this seemingly "extreme" practice, Ray delved into philosophy and came away with a more emphatically open and constructive approach to critical thinking as a method that brings contending sides together for the purpose of seeking more comprehensive understanding

[217] Different epistemic position: i.e., the generally more certain, if not also dominating, expression of knowing by STEM students who use more deductive logic for problem-solving vs. the more open-ended, relativist position typical of non-STEM students who use more inductive logic for essay writing.

or synthesis of valid viewpoints. Arguably, Ray's understanding of critical thinking can be said to extend Alex's logic/cognitive-centered focus deeper into its truth-seeking origin or intention and wider into its classroom practice and influence on students' social dynamics.

If Ray's conception can be said to have touched upon the interpersonal dimension of critical thinking, Joanna's emphasis on its independent spirit and agency extend even further by describing explicitly the intrapersonal significance of critical thinking—i.e., effect on individual selfhood—*and* its sociopolitical relevance—effect on social change. In other words, moving from Alex to Ray and then to Joanna's conception, we see that critical thinking is not just logical thinking but also a purposeful reasoning that entails, simultaneously, a way of being. That is, a rational way of being with ourselves and with others that both affirms (i.e., each person's individuality) and transforms for the better (e.g., individual experiences and social structure).

Granted, each student's explicit description of critical thinking seemed to differ and may even be partial; however, their actual practice overlapped to a significant extent. For example, even though Alex and Ray did not highlight *independent thinking* in their definitions of critical thinking as explicitly as Joanna did in hers, expressions of intellectual reservations about the methods or theories they learned in school—even those they found helpful and adopted to varying extents in their own practices—were abounded, suggesting practices of independent thinking. In other words, to varying degrees, these students' implicit understanding or practice of critical thinking showed greater breadth and depth than their limited descriptions of it. As this gap between explicit articulation and implicit practice of critical thinking appeared to be a recurring pattern found among participants in the study, further exploration may be detailed in the later discussion chapter.

Perhaps parallel to the varied conceptions yet arguably more similar practices of critical thinking, the subgroup 1 students also exhibited selfhoods that were distinctive yet shared a similar upward trajectory of growth and transformation. For example, even though Joanna was more extroverted, assertive, and conversant than Ray and Alex from the first interview onward, all of them demonstrated greater confidence and growth by the second interview. As the extensive subgroup analysis above demonstrates, the exposure (albeit relatively late in the developmental stage) to critical thinking and knowledge played a significant role in this positive trajectory or development—i.e., enabling them uncover previous assumptions, recognize what they did not know, and shift their thinking and being toward ways they would later choose to embrace. At the same time, the shared qualities in their selfhoods—i.e., the propensities for reflection and intellectual openness, the desire for meaning, and perhaps a kind of moral inclination for truth and the good that is larger than oneself—also propelled their overall growth, including development in their critical thinking practices.

Such inner qualities seem to resemble the non-rational dimension exhibited by Group I students, albeit in a perhaps more nascent form. Recall Group I students analyzed earlier: along with demonstrations of further developed critical thinking practices, they also conveyed distinctive, if not also elaborate, expressions of spirituality/religiosity, inner voice, and alternative rationality—that work in tension as well as in a mutually strengthening relation with their critical rationality. While these Group II students' inner meaning-seeking qualities or expressions of the non-rational dimension did not appear as strong or well-formed, they were likely to continue strengthening and supporting their overall growth, including the practice of critical thinking. In other words, insofar as the "non-rational dimension" is defined in this dissertation as internal

qualities that support one's rational development, these subgroup 1 students also demonstrated a non-rational dimension that works complementarily with their abilities to think critically.

As these students offered numerous insights into the practice and impact of critical thinking in their cognitive and personal development, a number of pedagogical takeaways should be discussed. First, in light of the varying usage and emphasis of deductive vs. inductive logic across academic disciplines and the possible influence of different disciplinary trainings on students' epistemic attitude, an introduction to logic would make sense as a part of critical thinking education. Granted, basic logical concepts and logical fallacies seem to have been taught as a standard part of logic-centered approach to critical thinking courses or textbooks, a tighter connection between logic and disciplinary methodologies or knowledge construction processes may further students' engagement with logic—an otherwise dry and abstract subject—and enhance their overall critical awareness of the strengths and limitations of their disciplinary thinking that also invariably shape their own thinking processes and epistemic assumptions.

Second, it may be crucial to explain and discuss the nature and purpose of critical thinking with students before instructing them the forms or the *how to*. It may be helpful, for example, to provide students with some descriptors capturing the various aspects of what it means to think critically. One such aspect mentioned by subgroup 1 students in their varied ways was the concept of "comprehensive thinking" as a part of critical thinking. And this concept in itself needs further unpacking: it can mean thinking thoroughly of the various aspects of something (e.g., an engineering project or product and its feasibility under different conditions); it can also mean careful evaluation of the pros and cons of a decision and its consequences; it can even mean

considering different perspectives or viewpoints beyond one's own before reaching a final conclusion or action. While one may argue that there may not be a commonly agreed upon definition or description of critical thinking—as it is arguably one of the most difficult concept to define in education—it can also be argued that such unpacking and explication of critical thinking may help clarify for teachers what they are in fact teaching students by the term "critical thinking" and for students who they can improve their critical thinking abilities.

Perhaps, for the very least, the purpose of critical thinking may need to be explained or reminded before the practice in a group setting. As Ray's reflections seemed to suggest that when unguided, students can often conflate critical thinking with debating, and the combative debating spirit can increase interpersonal tension or mistrust that hampers students from considering the validity within the other person's viewpoint and reaching toward a better understanding. While Ray did not make an explicit connection between the mistrust he experienced at the personal level with the division that was becoming apparent in the sociopolitical sphere, the parallel is conspicuous. As a critical thinking educator, it may be natural to wonder whether a different form of critical thinking—one that moves beyond individualistic argumentation and aims toward collaborative truth-seeking—could have or can improve the current large scale social mistrust and political animosity that appear to be hurting the U.S. in a significant way.

At the same time, as these students' reflections and practices of critical thinking also seemed to suggest, critical thinking *can be* used in a way that is beneficial for individual growth and for social progress. In other words, critical thinking can be a positive force for people in the

U.S. and, more broadly, around the world. The quality of critical thinking pedagogy, however, may need a thoughtful reconstruction first.

III. Group II Subgroup 2

Subgroup 2 consists of four participants—Eleanor, Nathan, Cindy and Arielle—who are grouped together because they seem to share a unique characteristic vis-à-vis critical thinking and its connection to selfhood. That is, in spite of their fairly strong critical thinking dispositions and skills, there was something internal to each of them—which I called it either "passion" or "focus"— that seemed to have inhibited their critical thinking from being applied to certain core values they were passionate about or some important concerns that were, however, outside of their prioritized focus.

More specifically, in Eleanor and Nathan, we see how "passion"—i.e., for either challenging the dominant narrative or preserving a more traditional sense of order—may have stimulated their sociopolitical actions or observations in the first place, while later limiting the extent of their critical thinking application in closely connected personal and sociopolitical domains. By contrast, in Cindy and Arielle, we see a kind of "focus"[218]—shaped by one's innate preferences and by one's family/parents (as in Cindy's case) or by friends/social trends (as in Arielle's case)—to thrive within the varied forms of neoliberal globalization manifested in

[218] The difference between "passion" and "focus" as exhibited by the participants in this subgroup is arguably small. I use two different two words here, however, to differentiate the more complex or ambivalent prioritization exhibited by Cindy and Arielle. While they avoided or skewed the larger social issues, they were in fact aware to varied extents—as their questions or emotions would sometime indicate such awareness. In other words, their particular priority or pursuit was more of a choice than directly compelled by a single-minded, strong impulse (as the word "passion" may suggest).

different geopolitical locations (e.g., China or the U.S.). Such focus, as practiced persistently by both of them, may have propelled their use of critical thinking in the personal and academic domains—contributing to their successes in strategizing and navigating challenges in these domains—while subconsciously deterring their critical thinking in the sociopolitical domain.

In short, the four participants in this subgroup exhibited various forms of "passion" and "focus." These arguably affective or psychological elements seem to be neither strictly "non-rational" (i.e., supporting critical thinking, as evident in Group I cases) nor strictly "irrational" (i.e., inhibiting critical thinking, as prominent in Group III cases). In other words, both "passion" and "focus" can operate either non-rationally/supportively or irrationally/inhibitively to the application and development of critical thinking as a deepening and broadening force on our thinking and being across domains. The exploration of these affective elements in connection to their critical thinking application, or the lack thereof, offers insight into some of the most important socioeconomic and sociopolitical currents of our times—e.g., the individualization force of globalization or neoliberal global capitalism as manifested in different geopolitical locations and the polarizing ideological and political force of the extreme left and right—that seem to make the practice of critical thinking both more challenge and necessary.

1. Eleanor

Eleanor demonstrated an assertive sense of self and a significant number of critical thinking dispositions and abilities; however, her accounts also indicate other powerful inner qualities—perhaps in the category of strong emotions or impassioned propensities—that may have, at times, repressed her critical thinking. The following analysis begins with Eleanor's early

expressions of critical thinking and also charts drastic reversals of her positions as a student who was ambivalent about her education and environment under an authoritarian regime in China. The analysis then proceeds to demonstrate that while Eleanor's critical thinking continued to manifest and develop, radical changes of position or perspective would take place again in her experiences abroad, now as an immigrant and emergent social justice scholar-activist. The discussion ends with a conclusion that explores briefly the tension between critical thinking and the impassioned pursuit of sociopolitical purpose that is reflected in Eleanor's case and arguably central to recent debates on the direction of critical thinking education moving forward.

1. Earlier Manifestations of Critical Thinking & Selfhood in China

Dispositions favorable for critical thinking development appeared early for Eleanor. For example, describing herself as "a bit unusual" in a largely collective-minded environment that emphasized deference and security, Eleanor said that she always had a propensity to "challenge authority" and raise problems that others might have bypassed them:

> I think I am the kind of person who can be rather high-maintenance.[219] For example, some people might encounter an event and consider it to be great, but I would think and be kind of sarcastic about it. My being sarcasm [sarcastic] is a kind of way of life or mode of thinking.

What can be clearly discerned from the above quotation is a number of cognitive dispositions that are essential for critical thinking: e.g., her propensities for recognizing problems, questioning given claims, and problematizing contradictions. As educational psychologists asserted (see

[219] The Chinese word or slang Eleanor used to describe herself—perhaps in a playful, self-deprecating, or self-proclaimed "sarcastic" way—was "事儿事儿的" which has been translated variedly as "handful," "fussy," "high maintenance," "drama queen," etc.

literature review), without such sensitivity to problems, the process of critical thinking may not be initiated.

It may also be worth noting, on the side, Eleanor's word choice in English, "sarcastic" or "sarcasm"[220] in the above quotation, for it appeared several times throughout the interviews, though more often conveyed in Chinese as "讽刺". On the one hand, her response or word choice needs to be understood with reference to the prior interview discussion on her critical thinking development in China and to my follow-up question about the source of her seemingly innate sense of independence in an environment that had largely emphasized conformity. Seen in this semantic context, her use of the word "sarcasm" may be understood as a kind of replacement for "critical thinking." Arguably, the two words may be used interchangeably as both can convey the meaning of "being skeptical" and "to critique or criticize." On the other hand, the word "sarcasm" (in both its English and Chinese forms) suggests a stronger emotional dimension by definition—e.g., of wit and humor as well as repressed anger and contempt—that is not typically attributed to "critical thinking." In other words, Eleanor's use of "sarcasm" as a replacement for "critical thinking" can also be seen an instance of her propensity for strong and colorful expressions—sometimes in the form of self-deprecation and other times as slight exaggeration of emotion. Moreover, in light of the larger context of the entire interview data, this emotional component—whether in the form of sarcasm or other passions—seems to have played a significant role in Eleanor's case, shaping both her perceptions and actions. The forceful

[220] Both the English and Chinese word--"sarcasm" and "讽刺"—convey a certain emotion within a cognitive process or expression that is largely absent or different from critical thinking. Given the context of her narratives sometimes, she might have also meant "critical" or "skeptical," as "being critical/skeptical is a way of life or mode of thinking."

impact of such emotions deserve further exploration, as will continue to be explored in the following pages.

Going back to her innate propensity to express herself in critique or sarcasm, it seems that compounded with other critical thinking dispositions, such as the habit of actively "asking questions" and searching for the underlying reasons or motivations of events and actions, Eleanor often felt out of sorts in a test-oriented and top-down/teacher-centered Chinese education system:

> I asked many whys, yet teachers only wanted to tell you certain answers, expecting you to memorize and write them on the test. [In other words,] when you ask many questions, they get annoyed. For example, I especially liked history, but the way Chinese history is taught [in China] leaves many questions unaddressed. When I raised questions, the teacher just said that you don't have to know the whys, you just need to know how to write the [correct or standard] answers. This was the most typical response, so I was very disappointed, feeling like you [the teacher] were completely discouraging us from learning.

Yet, curiously, even though Eleanor felt skeptical and resistant to this rigid education system at some point in middle school—perceiving that it was not designed for the purpose of cultivating students' interest in learning but with the aim of "integrating them into the larger social system"—her perspective and attitude changed drastically in high school:

> I don't know what happened later, for a period of time I just felt that since I am already living within this kind of social system, I might as well integrate myself into it. So for a while, I felt very much part of it: I would watch the news every day, and sometimes, whenever heroic deeds were reported in the news, I would often be moved to tears. That was in high school; I felt as if I had many ideas of my own and knew what it was that I wanted to do. Even though I was initially sarcastic—I am this kind of person, who often sees the obverse/negative[221] side of things—but later, during this period of time, I really felt that the Chinese Communist Part or this society is really wonderful for providing us with so many opportunities.

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[221] The Chinese word Eleanor used was "反面", as in the whole phrase from the quotation: "遇到什么事情都会反面来讲". As a noun, this Chinese word means "the back or reverse side"; as an adjective, it means "negative." Given the context of the quotation, it may also be translated as the "obverse."

In other words, in spite of her strong response or position against the education system, along with the larger sociopolitical system of which it is a part, Eleanor was also able to persuade herself in the interest of practicality and ardently embraced the opposite of what she had perceived or believed. In addition, once she switched her perspective or position to the other side, her emphasis or perception seemed also to focus only on the positive aspects of an environment that she had previously highlighted its negatives.

Eleanor's position would reverse again in college (she had a semester or two in China before dropping out and coming to the U.S.), when she was exposed to scholarly critiques of the system and saw for herself the various ways in which the government controlled and distorted information that was disseminated to its citizens:

> It just had never occurred to me that on the same issue, foreign media could have reported in ways that were completely different from the Chinese media. When all of them [foreign media] were different, I began to wonder what had led to the difference—whether it meant that all of them were directing against you [i.e., Chinese media or government] or that there was something wrong with your entry point [or perspective]. Then it just suddenly dawned on me that I can't accept, as someone who would be working in the news/media sector, that all the information we receive might not be true. I wanted to show people different perspectives to see the world and have a real impact on them. Yet if everything belongs to the government, news media would be done in a way to promote the its [government's] propaganda, then that would be something I could not accept…. Once you have such a lens or perspective to see things, everything becomes completely different. I felt I really saw the entire Chinese system, including its education, and felt that I had no confidence in it…. Your trajectory is basically determined by your [or your family's] class. For students like me who did not come from big cities, unlike most students at the university, I felt I was a minority, even though such phenomenon is not recognized in China, as everyone is a Chinese [or presumed to be a Han ethnic majority] there. But honestly, if you are in a disadvantaged position, no one would really care about you. So I felt my chances wouldn't be great, as I could already envision what it might be like in the future. Therefore, I thought of coming to the U.S. to give a try.

The above quotation demonstrates Eleanor's concern for truth or truth claims—an important critical thinking disposition—that seems to have effectively shook her out of the sociopolitical system into which she had previously tried to integrate. The intellectual exposure in college was a "trigger," as she called it, for her to explore the outside world and a wider set of perspectives, leading to an overhaul or reevaluation of her experiences and chances in China.

Apparent from the quotation is also a strong, affirmational selfhood that was confident and ready to take charge of her own future, to try something new and different, and to pursue actively a set of priorities and values that appeared to be different from the norm — e.g., meaningful sociopolitical engagement or influence over others rather than the perhaps more typical concerns for one's individual interests and financial prosperity. As Eleanor said: "Others may consider first how to secure a decent living, but for me, if I have that yet without my existence being [properly] acknowledged, that would be something even harder to accept."

While having a strong sense of self seems to be a necessary attribute of students with strong critical thinking abilities, as the previous analysis of Group I students demonstrates, Eleanor's back and forth changes from one position or extreme to another—or as she said of herself, "I tend to change easily"— seems to stand out among the research participants in general and contrast substantially with the more balanced and steady development of the self as exhibited by students in Group I. While these (Group I) students may experience intense debates within of different positions or claims, the back and forth motion would appear largely at the cognitive level rather than at the action level. In fact, critical thinking may be seen as a process for one to consider carefully the merits or limitations of different sides before making a decision or embracing a position. In other words, even though this ideally thorough and open-minded

thinking process may lead to an improvement or change of one's original position, critical thinking is also a method to bring forth a more stable, committed position of one's own, with which one can respond semi-permeably rather than drastically to external influences.

2. Later Manifestations of Critical Thinking & Selfhood in the U.S.

In Eleanor's case, the drastic reversal of positions or responses to the changing environments seems to be a pattern that would repeat itself, as it happened again abroad. According to Eleanor, she had already developed a critical lens for interpreting the world and her experiences by the time she left China. Even though she was not well-informed about life in the U.S. before arriving, it did not take long for her to perceive some of its complex social/racial problems, particularly for women of Asian descent like herself. Yet around the same time in the first year, Eleanor also had a strong desire to integrate into the dominant culture and took pride in being what she felt to be "the coolest"—i.e., the only Asian able to socialize comfortably with a circle of largely domestic, white friends:

> In where I was [attending community college], almost everyone was either white or Chicano/a. So as an Asian, you don't see many other Asians, and this sense [that something might be going on, e.g., being stereotyped as an "exotic" Asian woman] was particularly strong and difficult for me. But it didn't seem that anything can be done about it then. The funniest part is that I wanted to become white, as if I had this idea that being white was a good thing, [or becoming white was]a necessary thing to do. So whether it was what clothes to wear or what shows to watch, I wanted to imitate. When they [friends] commented that I was very Americanized and different from other Chinese, I responded, 'of course [I am] different.' Looking back, I find my idea then to be quite ludicrous, because it was about complete westernization, believing that through westernization, we[222] would become stronger and more advanced.

[222] Eleanor suddenly shifted to first person plural "we," perhaps signaling her later identification with the Chinese community rather than her individual differences as she had initially highlighted. The idea of complete westernization (vs. partial or resistance to it) was part of an intense and arguably ongoing national debate in China since the Opium War or the first Western military invasion of China at the end of the Qing dynasty.

The quotation above seems to suggest that Eleanor's eagerness for becoming white or Americanized was fueled by at least two different forces of socialization: i.e., in the new country that privileges the white culture and race, and in her home country that had internalized and embraced—albeit to various extents in different times and with varied levels of ambivalence—the idea of westernization. Also to note is the repeated pattern when the different quotations above are juxtaposed, showing a parallel between Eleanor's attempt to integrate into the new social environment in the U.S. and her earlier effort to embrace the sociopolitical culture in China. The pattern seems to suggest that in spite of her initially critical observations and reservation in each instance, Eleanor's strong tendency or desire to adapt and excel within a power structure was likely, at least for a period of time, to surpass other considerations and become the primary force for directing her actions.

Yet in both instances or environments, Eleanor's critical or reflective side of the self would also find its way back into her thinking and decision-making processes. As a self-described "sensitive" person, who was keen at noticing issues of unequal power dynamics and persistent with uncovering "the reasons or motivations underlying others' actions," Eleanor came to suspect her sense of belonging to a milieu that held a simplified and misguided view of her as an "exotic" and "compliant" Asian girl and China as a meritless communist country. Disillusioned by the prevalent racial stereotypes or what she would later identify as "microaggressions," Eleanor eventually disassociated herself from her initial dream of becoming part of the mainstream American social fabric, quit from her study at the community college, and went to work within a predominantly immigrant/Chinese community.

The working experience within a largely marginalized and isolated ethnic enclave further exposed Eleanor to the racial divide in the U.S., propelling her to later resume her pursuit of higher education, as she explains below:

> I worked for a relatively long period of time, about four to five years, and I felt completely changed by the experience. I discovered many things I hadn't known through this immigrant community and living in the U.S. in general. As a result, I grew a lot and gained a deeper understanding of the American society. I also felt that I have truly found my purpose: as a person with a fairly strong sense of social justice, I knew I wanted to fight for these people [the disadvantaged Asian immigrants, particularly the undocumented] and speak out on their behalf. This is why I came back to school.

Once Eleanor returned to college, several courses that provided a more critical perspective from history, philosophy, and ethnic studies led her to reexamine her initial desire for integrating into the mainstream culture and confusion about being a racial minority in the U.S. Eleanor said that, in retrospect, she felt "ashamed" for having initially alienated her own community and has now taken a decidedly "more progressive" approach—i.e., one that calls out white supremacy and rejects the idea of westernization or assimilation into a "predominantly western and white culture." In other words, the critical lenses or theories Eleanor gained in academia not only gave her a clearer understanding of her experiences as an immigrant and minority but also helped to shape her sense of purpose in dismantling the stereotypes around Asian-Americans and advocating for a significant proportion of disadvantaged yet under-supported subgroup within the large racial category.

While the above quotation suggests that Eleanor's expanded critical thinking and knowledge brought clarity to her identity as a social justice advocator, later parts of the interviews indicate that this empowered sense of the self also gave her greater impetus to learn and improve her ability to think and express critically. Describing her feeling "frustrated" at times

by her language barrier and lack of conceptual knowledge for effective interracial dialogues, Eleanor also mentioned her eagerness for acquiring more theories and research methods that can help her tackle significant social issues around equity and inclusion. It is thus apparent that Eleanor's strengthened selfhood also became a major force in furthering her critical thinking development across the personal, academic, and sociopolitical domains.

However, at the same time, this invigorated and politicized selfhood—fueled by a confluence of meaningful personal and sociopolitical purposes—may also function in ways that can inhibit critical thinking, as may be seen in the following quotation:

> If you want to do social justice work, you would definitely adopt a certain attitude—i.e., believing [or asserting] this is right or that is wrong. If you want to accomplish such a purpose, you have must this kind of argument: we need assistance in these areas and why we need such assistance. If you don't have this kind of argument, it would be hard to get support. Often times [pause with a small utterance of resignation or reservation] in order to attain such goals, it's really necessary [pause] to have a strong voice.

Eleanor's above reflection of her work in social justice activism—a rising force or perspective that has become increasingly prominent in higher education and beyond—seems to suggest a prioritization of sociopolitical goals over more nuanced and balanced arguments or discussions. From this scholar-activist perspective, arguments or assertions in favor of such goals may be presented or promoted in the strongest terms. Understandably, this argumentative style may have emerged out of necessity (e.g., systemic suppression and resistance to addressing various forms of inequalities), and it may have been forceful and successful at reaching the more immediate sociopolitical goals. Yet when carried to an extreme, such rhetorical approach may also foster a way of thinking and attitude that can sideline different or contending viewpoints and evidence—effectively inhibiting critical thinking in the long term, at least the kind that manifests and supports diversity and inclusion.

Eleanor's pauses or small utterance toward the end of the quotation may be telling, especially in light of her frequent descriptions throughout the interviews of her propensity and willingness to "see things from different perspectives" which is an essential element of critical thinking. She understood, for example, that undergirding the act of considering different perspectives is an epistemic position that is not binary—e.g., as in the form of "this is right or that is wrong" that is believed to be necessary for sociopolitical messaging; rather, openness to different perspectives or critical thinking embodies more relative, doubtful, and ready to engage in dialogues that as she said: "I think it's all about having to think and discuss dialectically back and forth." In other words, Eleanor may have (had) some awareness or reservation about the means to a purpose that she has readily embraced. Perhaps in time, Eleanor would also change or modify her position on this complex balance question between scholarship and activism—one that has become increasingly important for many education theorists and practitioners to wrestle with in the age of global knowledge economy and local social divisions. For the time being or what may be discerned from the interviews, however, it seems that her passion—in the most recent form of an ardent pursuit of sociopolitical activism—may again be the dominant force directing, and possibly limiting certain aspects of, her application and expression of critical thinking for some time to come.

3. Conclusion

In short, Eleanor's experiences in the U.S. also indicate a series of reversals as she moved from an initially vague but critical awareness of her new environment, to an active adaptation approach to the dominant culture, and then back to a more explicitly critical position supported

by sociopolitical theories and ideologies. This pattern of reversals echoes an earlier pattern in China, suggesting perhaps two contending and alternating forces within Eleanor that were shaping her perceptions and experiences: a strong propensity to think critically, on the one hand, and impassioned striving toward integration within a power structure or a position of power that may repress certain applications of critical thinking, on the other hand. Even though Eleanor seemed to be aware of this repeating pattern, she interpreted it as a manifestation of her critical thinking, as evidenced in the following quotation:

> To say that my decision to come back to college is an act of critical thinking may be a bit of an overgeneralization; yet in a way, it is an expression of critical thinking. If you look at my journey—whether in China or here [U.S.], I have been changing back and forth many times while exploring continuously.

While the movement "back and forth" may indeed be an apt metaphor for capturing the dynamic motion within a critical thinking or discussion process, a repeated pattern of drastic changes between opposite positions *in action* may actually suggest something different—i.e., a propensity for impassioned judgment rather than balanced or thorough thinking before committing to actions. This impassioned propensity may also be seen in the way Eleanor described or critiqued things: often pivoting strongly to either the positive or negative side, depending her chosen position.

Granted, over a period of time and through exposures to intense dissonances as she moved from one position, milieu, or ideology to another, Eleanor would reflect and adjust her original perceptions. Yet the importance for teaching and applying critical thinking—as often described by participants in this study, including Eleanor herself at times—lies arguably in its functions for uncovering undergirding complexities beyond the surface level, considering reasonings from different sides, and making informed decisions based on such nuanced

understanding. In other words, while the purpose of critical thinking is in part about evolving and improving, it is also about growing a firmer foundation within oneself and mitigating drastic reversals or changes shaped by impassioned judgments or impressions—whether in a form of strong critique or embrace. Seen from this interpretation of critical thinking, Eleanor seems to represent a case whose otherwise strong critical thinking abilities can be undercut by judgments or motivations coming from powerful emotions or passion (e.g., for empowerment and justice). Such inner qualities, as demonstrated in Eleanor's case, may benefit from further examination or collaboration with critical thinking, as passion seems to be a force that can both limit the scope of one's critical thinking and give one a greater sense of purpose needed for important problem-solving at the macro/sociopolitical level.

2. Nathan

Similar to Eleanor, Nathan also exhibited a robust/affirmational sense of self and strong critical thinking dispositions and skills. Perhaps unlike Eleanor in temperament and political orientation, Nathan was more of an observer than an activist, and more of a traditionalist than progressivist in his engagement with the sociopolitical. The first section of the following analysis demonstrates his particularly strong conception and application of critical thinking in the academic domain. The second section explores in-depth Nathan's more complex manifestations of selfhood and critical thinking in the personal and sociopolitical domains, revealing the unyielding tension between his rational/critical thinking side that was closely associated with highly liberal values (in his mind) and his "common sensical"/traditional sense of self or worldview that may feel increasingly threatened by the trend of radical relativisms (e.g., absolute

freedom of speech, epistemic and cultural relativism) and liberal ideologies. The last section summarizes Nathan's ambivalence toward the practice of critical thinking and offers a possible solution to the spiritual and intellectual dilemma he had felt as a result of the conflict between his selfhood and critical thinking.

1. Critical Thinking in the Academic Domain

In many ways, Nathan was a strong critical thinker. The strength of his critical thinking can be seen first in his conceptual understanding of it, as evidenced in the following quotations:

> An important element of critical thinking is not to make hasty judgment—even if you were told that you are wrong, you should think calmly and respond after you have gathered [enough] evidence…. You always have to speak with evidence and can't approach issues in a binary—i.e., right or wrong—way.

> The overall function of critical thinking is definitely positive, as can be seen from the clichés [around what it is]: e.g., not to be easily deceived, to see things from different perspectives…. Or critical thinking is also about teaching you how to make correct [or warranted] judgments in face of a chaotic and vast amount of information, or to think independently rather than drifting along with the current [i.e., simply following along what everyone else may be saying or doing].

Nathan understood that to think critically entails not only a host of skills—e.g., evidence gathering/selection and argument construction/examination—but also a set of dispositions—e.g., a thorough demeanor and a questioning spirit that is always ready to examine proposed assertions. The quotations above, along with his other assertions throughout the interviews, also indicate Nathan's appreciation for critical thinking as a tool for building better judgment and knowledge claims and for striving toward nuanced understanding beyond simple binary terms. Moreover, having taken a writing course that drew pedagogical inspiration from the Socratic dialogues, Nathan also learned about critical thinking as an approach to inquiry that begins with

the assumption that "I am [might be] ignorant"—an arguably less emphasized insight into how critical thinking operates in its common practices.

Beyond a comprehensive understanding of critical thinking in general terms, Nathan also demonstrated a sophisticated grasp of how it manifests in his chosen major, history. Nathan's initial understanding of history, drawn from the works of historians in China, was "rather narrow—entailing diligent use of the archives and searching and examining the original documents; other than that, there seemed to be no other way to do history." However, while taking a new methodology course specifically designed for history majors, he learned how history as an academic field has evolved and the diversity of different approaches historians have used, particularly in the West:

> This [methodology] course was unique in the sense that it was taught by an intellectual historian, leaned heavily on theory and philosophy, and focused on questions *what is history, who do we study, and how and why do we study history.* Since I had never thought about history as an intellectual discipline—how it had developed, the course gave an overview of the field, tracing back to its origin and showing how people have viewed history differently from the past to the present. Long time ago, people thought history consisted of mythology, chronology, epics, etc. Starting in the 18th century in Europe, it was advocated that historians should use the archives and uncover original documents—i.e., for greater objective neutrality. In the more recent period after that, various debates arose negating that historians may not be able to maintain objectivity…. To this day, the teacher has not discussed in-depth a period of history or asked us to remember what has been said about a historical period. Rather, the focus was on having us analyze historical accounts: what approaches or methods were being used, or from what perspectives did the authors take to construct such accounts.

As Nathan explained later in the interviews, even though critical thinking may not be discussed explicitly at the university, he felt that it was often embedded in assignments and in the way instructors asked students to think from different theoretical lenses, to reflect on how historical approaches have evolved, and to uncover assumed positionalities or perspectives. In other words, Nathan understood how critical thinking is manifested and applied for knowledge

construction in his particular discipline. In fact, history itself, as he described succinctly, can be seen as a manifestation or application of "critical thinking cloaked with historical knowledge."

When asked about how such knowledge of the field and its contending approaches might inform his future research, Nathan was able to first provide his own thoughts and observations of the different research styles:

> I think the gap between how historians think in China vs. Europe and U.S. is quite vast. On the one hand, scholars in mainland China value empirical research more: they prioritize the examination of sources, believing that historical documents should be approached without any [preconceived] theoretical constructs and any conclusion drawn should depend solely on available sources. On the other hand, scholars here [i.e., American or European scholars of Chinese history]—perhaps their language skill is weaker and that hinders them from reading and comprehending a large amount of sources [in Chinese]—give greater emphasis on theories. For example, they might use theories from sociology and anthropology to analyze historical events, or they might come up with their own theories or unusual perspectives to interpret phenomena. One advantage to this approach is certainly that the more ideas or perspective you have, the more you may be able to pick up things that others have missed or come up with new interpretations…. The short-coming to this approach would be: they may not know their sources as comprehensively, missing some details or considering them to be unimportant; as a result, they might develop a skewed understanding which can lead to a false narrative [or interpretation of a historical event].

As a committed future historian who has been exposed to both—the long tradition of archival studies prominent among Chinese scholars and the more heavily theory-driven approach popular among contemporary Western scholars—Nathan also showed his criticality by beginning to form his own way. That is, to go beyond the apparent binary options and "combine the two approaches," so that sources may be grasped thoroughly and accurately and existing understanding or conversation around a given historical topic may be "broadened with the infusion of new ideas."

Moreover, in response to a follow-up question about the cross-cultural use of theoretical lenses—i.e., adopting theories developed out of one geopolitical space (typically from the West)

to perceive events happening in another space that might be significantly different in many ways—for him as a scholar who is being trained and will continue to reside in the U.S., Nathan demonstrated an awareness of the debates and was both confident and cautious in asserting his own position:

> I suppose you can say that [i.e., admitting to the possibility that the use of theoretical lenses, especially cross-culturally, can potentially distort understanding]. However, should you eliminate the use of theory altogether, it becomes a bit like refusing to eat for fear of choking. This is [also] because sometimes the availability of sources may lag behind…especially for those after 1949: fewer and fewer archives [of this most contemporary period in China] have been made accessible, as they are typically top-down. If you insist on understanding this period from archives and historical documents, it's possible that very few new conclusions can be made. However, if you can draw upon theories to discover something new—e.g., new documents from the bottom-up or common folks, then fruitful research may continue to develop…. This is my current [Nathan's louder voice emphasis] take on the issue, perhaps when I learn more theories in the future, I may see more problems with using this approach.

In the quotation above, Nathan provides his argument for the theory-driven approach to history, delineating his rationale, backing it up with evidence, and even finishing it with a note of limitation—i.e., his position is based on current knowledge of the field which may change upon new evidence or understanding. All of these elements suggest a robust practice of critical thinking in the academic domain.

2. Selfhood and Critical Thinking Outside of the Academic Domain

The strength of Nathan's critical thinking skills and dispositions in other domains, such as the sociopolitical and the personal, appeared to be less straightforward or more complex to determine. This is because on the one hand, many of his critical thinking elements (e.g. use of evidence, construction of his own position, consideration of contexts, etc.) that were salient in the academic domain were also present in his observations of events in the sociopolitical domain

or in his decision-making processes in the personal domain.[223] On the other hand, the idea that critical thinking may be "limited," "abused," or "bring chaos"—referring to its use in the sociopolitical and/or personal domain—stood out repeatedly in his responses and conveyed perhaps a certain unresolved tension or emotion. As evidenced in the initial questionnaire, for example, Nathan expressed in writing what seems to be an ambivalence toward critical thinking:

> Critical thinking is important for me, but it's not everything. It drives me to think actively and effectively and makes me more incisive. However, critical thinking should not be abused. There's something that cannot be doubted and questioned, or there will be chaos.

In the follow-up interviews, we explored each of his observations or reservations about the dominance of critical thinking in his experiences abroad. To begin with, by stating that critical thinking is "not everything" or limited, Nathan was first referring to its effect on him as a transnational straddling contending expectations in different socio-cultural spaces:

> The first time I felt that I had really understood 'critical thinking' was through the English course that I took at the community college in my first semester. Although the course itself was not called critical thinking, the concept was even emphasized in the course syllabus, starting with the very first session on 'fallacy of tradition.' So when I returned to China in that following winter break, I was rather impacted: I would think *why should I listen to you, when my assertion is logically sound*. Yet as you can see, later on, including [recent interests in] theology and Christianity, I think I've reversed back a bit. It just dawned on me that rationality, including logic, cannot solve all the problems.

Nathan's above reflection indicates that the acquisition of critical thinking in the U.S. changed, at least initially or temporarily, his attitude toward traditional or normative practices in China, such as deference to authority, tradition, or the elderly. He became less compliant, more "rebellious,"

[223] His applications of critical thinking in these domains cannot be described in detail due to the length limitation of the dissertation; however, a general picture of how robust critical thinking can be applied in these domains have been described through analyses of other cases, e.g. Group I students' accounts.

and assertive—qualities that may be accepted or positively encouraged in the U.S. but perceived more negatively in China. Yet over time, Nathan realized that this logic-centered and "too direct" approach may not be the most effective way to communicate with others and retain an overall sense of friendly connection, especially in the Chinese social context, which he in fact cherished. Consequently, Nathan reverted back to a "more emotion-oriented approach"[224] or what he also called his "Chinese common sense"—i.e., values or sensibilities that are readily shared by most people in China—particularly on matters of the personal and the interpersonal.

In other words, Nathan's assertion that critical thinking is important but not everything to him is that while it plays a primary role in how he approaches his work in the academic domain, it is not sufficient nor primary in problem-solving for him in the everyday life domain—where context, emotion, and shared sensibility may appropriately play a more important role. This reflection of the limitation of critical thinking or difference between the kind of critical thinking fostered in the academic domain and the kind that is necessary for the everyday life (personal and interpersonal) domain surfaces repeatedly in other participants' accounts as well. Their experiences and insights into the use of critical thinking in different domains raise questions about the typical assumption made by education theorists that the transferability of critical thinking across disciplines and domains is largely automatic and the cultivation of critical thinking in and for academic disciplines may be sufficient for the development of students as whole persons or as future citizens of a strong democracy.

[224] The word in Chinese Nathan used in the interview was "感性," which can be translated as sensibility, sensitivity, and emotionality. The word was used in opposite contrast to "理性," i.e., rationality and reason, which is more characteristic of critical thinking.

Yet there also appears to be an even deeper tension within Nathan's reservation about critical thinking or rationality in general, as evidenced in his following reflection:

> If you should say [or believe] that *this [or a certain] idea is eternal, correct, or the truth*, but your rationality or critical thinking tells you that nothing is eternal or what you say may be biased or wrong—you get what I mean, right—then your rationality would compel you to choose [the answer that] *this is not a universal truth*, even though your common sense or sensibility might tell you that *this [i.e., what you believe to be true] was right*. So in such cases, I can only lean on religion—what theology or Christianity, for example, has to say. Religious teaching may stipulate that this idea is created by God—i.e., it has been defined for you by God and, therefore, must be adhered to. Everyone is equal in face of this definition [or stipulation]; it does not permit back and forth changes. You might find this kind of explanation [or approach] more comfortable—i.e., this is OK, plausible, or acceptable; after all, religion is never rational, isn't it. So you would think this way of saying makes sense, without feeling anything said is being outrageous.

The above quotation seems to suggest that what concerned Nathan about critical thinking is also the forceful yet limiting power it can have on individuals like himself who happen to believe a set of ideas or epistemology—e.g., there are eternal or universal truths— that may be at odds with the more prevalent liberal/postmodern perspective or values, presumably associated with rational and critical thinking, in higher education. Arguably, this can be perceived, as Nathan seems to express, a limitation of critical thinking—i.e., identified necessarily or interchangeably with such values or epistemological beliefs practiced in a categorical way—for it does not seem to permit beliefs that are different. As such, it is almost as if in order to preserve his inner beliefs or values—warranted or not—Nathan had to abandon critical thinking a bit or compartmentalize it largely for the academic domain or some situations but not for others.

In other words, there seems to be a difficult philosophical and spiritual dilemma for Nathan as a scholarly thinker, between his well-trained rationality—presumably aligned closely with a particular set of values or beliefs that are often being upheld in a categorical way—and his natural or cultured inclination for another different, perhaps more traditional and less popular,

set of beliefs. In face of this challenging tension, Nathan resorted to other means, such as searching for books or articles that share his positions, even though he was also aware that such practice "may not be entirely appropriate" from a scholarly or critical thinking point of view. While Nathan's temporary affinity with religion or religious doctrines may not be considered as inappropriate, it seems to have served him the same purpose as reading like-minded publications for providing the reassurance he needed to uphold his differences or what he believed. Such attempts may suggest a certain strength of self—e.g. a habit or attitude to affirm himself and what he genuinely believes or prefers; at the same time, these expedient solutions may also inhibit further examination or thinking that could enrich Nathan's understanding of the larger world different perhaps from his preferences.

The difference in how Nathan leaned on religious authority may be contrasted with the way Group I students drew upon religion and other non-rational resources. Granted, Group I students also mentioned, in their varied ways, some of the critiques Nathan expressed in the above quotations: e.g., the limitation of critical thinking—particularly in its dominant practice or logic-centered form. And these strong critical thinkers also highlighted the benefit or necessity of utilizing one's non-rational dimension—e.g., feeling, empathy, inner voice, and even religiosity or alternative worldview—in conjunction with critical thinking, especially when it comes to personal and sociopolitical matters. Yet recall the way they used these non-rational elements, which seem to have largely supported their critical thinking and vice versa. By contrast, the way in which Nathan leaned on religion (though he did not formally embrace a religious faith), as evidenced in the above quotation, seems to have served to ease his discomfort and the dilemma or confusion that a relentless or consistent practice of critical thinking could have brought upon

him. To be noted, this contrast may be particularly salient when Nathan's account is being juxtaposed with Tim's, whose religious faith/non-rational dimension seems to have worked in a complementary or mutually-strengthening way with his critical thinking practices. In other words, religion in Nathan's case seems to have been perceived and used as an irrational force to both relieve and repress his critical thinking and the spiritual and intellectual tension that it may build up within an individual.

Secondly, in asserting that critical thinking "should not be abused," Nathan was suggesting that it may, in fact, have been used in an "abused" or extreme way, as he explained in the long quotation below:

> Some ideas [possibly associated with or stemming from] critical thinking, one example of what they [unspecified pronoun] often like to say—*I may disagree with what you say, but I will defend your right to stay it*—is a statement that has been kind of abused. If a person who stands in support of fascism and asserts that what Hitler did was great and all the Jews should have been killed, do you think you can still say: *I may disagree with what you say, but I will defend your right to stay it?* I forgot where I had seen a similar scenario in a movie; it was a conversation between a professor and his students, where a student asked the teacher *how can you have a conversation with Hitler?* I can't remember the details, but the professor was taken aback by this question, because he too had this idea, as you had mentioned about critical thinking, that it's important for everyone to speak out what they have to say. That professor thought for ten minutes and eventually conceded that there is no other way out but to kill Hitler. Yet this conclusion goes against the dominant practice of critical thinking today. [For clarification, what is your idea of 'the dominant critical thinking practice'?] For example, everything can be questioned and there should be no constraint for that, though you might think that some ideas should not be had or questioned; or [for another example] there is not absolute truth but only relative truths—i.e., relativism.

As can be seen from the quotations, Nathan perceived that critical thinking has been practiced to an extreme, in a way that was unconstrained or perhaps unhinged. It may also be important to note that Nathan's critique of the existing practice of critical thinking may have been based on an undergirding connection in his mind, as he hypothesized or mentioned more explicitly

elsewhere in the interviews, between critical thinking and the concrete ideas or ideals (e.g. “freedom, equality, and fraternity”) that have been dominating the West since the Enlightenment Age.

Admittedly, the espousal of a critical thinking spirit as an educational goal might have become explicit in the Enlightenment (Biesta, 2001), and the prominent values that had emerged during that period —e.g., individual liberty and equality—may have been a product or complementary partner of such rational reasoning. Yet the extreme form of free speech and relativism that Nathan mentions in the quotations may not be the direct or necessary result of rational reasoning but an “excess”—as education theorist Robert Ennis (2011a) observed of influential intellectual/sociopolitical movements in general—of the Enlightenment or unchecked valorization of human rationality. That is, over a long period of time, cherished values are taken for granted and revolutionary ideas become ideologies, while the original context and rationale that had engendered these cherished values is largely forgotten. In other words, these initially liberating values, now upheld in a categorical and unreflective way, may have become the antithesis of their arguable origin in rational or critical thinking.

Nathan’s claim or critique of critical thinking in conjunction to the “abused” practices warrant a bit more exploration, for it seems to be a mix of insight and a reflection of a larger conflation of the different forces (e.g. liberal and illiberal, rational and irrational) that are shaping the intellectual and sociopolitical landscape of the U.S. today. For example, the popular phrase—*I may disagree with what you say but will defend your rights to say it*—may need to be closely examined or unpacked. One may ask: Is this statement a faithful or warranted representation of freedom of speech, espoused by the Constitution and/or by the Enlightenment thinkers? What

does "defend" mean: does it mean in a strong sense as doing all one can to actively "support in action", or in a weaker sense as to merely "recognize" the other person's rights under the law? Even if one does defend free speech in the strong sense, does it necessarily mean to defend unconditionally? One may also wish to consider whether this extreme phrase or characterization of free speech may, in fact, be an instance of logical fallacy called "strawman"[225]—i.e., an exaggeration to discredit the legitimacy of this ideal? Such questions may be important to consider, for what would remain with the elimination of this ideal made extreme or absurd could be a pass for intolerance of differences.

Third or lastly, Nathan also argued in his evaluation of critical thinking that, contrary to its purported espousal of absolute freedom of speech or inquiry, there are things or assertions "that cannot be doubted and questioned, or there will be chaos." One example was the statement, as discussed earlier, that challenges the common understanding of Hitler as one of the most reviled and brutal leaders in history and argues the opposite that he was in fact "a good leader that brought glory, victory, and prestige to Germany." Another example of statements or controversies that should not be questioned or doubted: "Women circumcision is definitely cruel and brutal, thus unacceptable in a modern civilized society."[226] Nathan seems to also believe that those who might question this assertion or feel sympathetic toward this controversial

[225] A strawman fallacy is one in which the opponent, most frequently seen in political debates, distorts or exaggerates the original claim made by the other side in order to defeat it.

[226] Female circumcision, more commonly called female genital mutilation (FGM), has been understood increasingly as a medically unnecessary, and potentially harmful practice. According to the 2020 World Health Organization data, about 200 million girls and women between age 19-49 alive today have undergone this procedure. While most of this population are concentrated in 31 countries in Africa, Middle East, and Asia, some are from the immigrant communities residing in developed countries like the United States. The practice continues to be controversial in the U.S. in the recent decade, with the 1996 federal ban on FGM being repealed at a federal court in 2018 and then later appealed by the US House of Representatives. As of 2021, 40 states have specific law prohibiting this practice, while 10 do not.

tradition do so because it is a culture practice and all cultures, under the prevalent idea of multiculturalism, "should be respected or none can be disparaged." Anticipating such a counterargument, Nathan raises the following retort: "If we ask ourselves that 'is circumcision a traditional culture of those tribes so that we are supposed to respect them?', how come?"

What can be seen from the above quotations on female circumcision is that Nathan challenges the relativist assumption undergirding multiculturalism (as he understood it) and argues that traditional practices should be subject to evaluation rather than being preserved blindly, simply because they are traditions. This critical stance on tradition seems to contrast with Nathan's own reverse back to a more traditional/ "Chinese common sense" approach to everyday life matters—for its efficacy in maintaining a sense of social connection in his milieu. Perhaps for some who stand by the tradition of female circumcision and perceive it as a part of their identity, abiding the practice may also be important to the maintenance of their sense of group membership and social belonging. Granted, this particular tradition in question is arguably more extreme and contentious than perhaps the seemingly non-consequential Chinese common-sensical practices that Nathan had in mind—e.g., a certain level of deference to one's elderly, tradition, or authority. Yet for those steeped within the traditions that still practice some less extreme forms of female circumcision, it may be their common sense, if not "pride".[227]

Seen in this light—i.e., from the perspective of the other whose practices inflict another's moral indignation—Nathan's response seems to be a bit absolute. That is, the assertion that the elimination of this tradition cannot even be questioned may convey a repressive force for those who still perceive this practice as a necessary part of their identity. Such individuals may feel

[227] https://www.nytimes.com/2016/02/05/health/indonesia-female-genital-cutting-circumcision-unicef.html

disrespected for having their rights violated, when they not be given even the right to consider or question the fate of their traditional practice or belief system; such indignation or fear may also drive them further into seeking a stronger or absolute form of religious or ideological support. This does not mean that external pressure or legal intervention should not be established to protect those who are being abused by this practice or who do not wish to be subjected to the tradition; rather, a total elimination of the tradition or practice may need to be dealt with some sensitivity (e.g., in the form of persuasion and communication) to those who might object it.

Moreover, the irony in Nathan's assertion here may need to be noted: the strong stance on stamping out different or dissenting voices in order to contain the world from "chaos" seems to echo the extreme practice of liberal/postmodern values that he critiques earlier. It would have seemed that given Nathan's own return to the "Chinese common sense" and wish for more openness to differences in the current intellectual and sociopolitical climate, he would have related more readily to those who also feel tied to traditions that are different from the dominant liberal norms. He would have been more questioning of the presumed causal link between "chaos" and dissenting ideas and more sensitive to the potency of the word "chaos" itself—i.e., as a shorthand covering the fear of messiness that come along with coexisting with differences. And perhaps he would have been more understanding of the notion that the suppression of challenging oppositions is antithetical to the open and examining spirit typically attributed to critical thinking.

Such questioning spirit and openness does, in fact, exist in Nathan's habitual thinking processes, as evidenced in the following problematization of his own assertion:

> I just think there are still things that should not be questioned. Of course, this [assertion] raises a further question: one may ask, *who is to decide the criteria that determines what things should not be questioned? Do you have the qualification to make this criteria?* Doesn't it seem, therefore, the issue has been raised to another level where we need to ask for guidance from theology?

In other words, even though Nathan presents a strong opposition to the extreme relativism that he critiques, asserting that there are things that should not be doubted or questioned, he also admits to the uncertainty within his seemingly certain position. This intellectual honesty or awareness also suggests openness for further examination or exploration, in spite of his existing tendency to lean on the idea of religion or Christianity (which he did not eventually embrace) as perhaps the ultimate arbiter for difficult controversies or uncertainties.

3. Conclusion

In short, Nathan's perception of critical thinking as being "limited" and "abused" seem to reflect a larger educational issue about the teaching of critical thinking and its associated liberal/postmodern values—practiced in an extreme or ideological way—that also have sociopolitical consequences. Such values, arguably stemming from critical thinking, might have been and still could be revolutionary; however, when these initially liberating ideas that challenge the old beliefs (e.g., in the existence of absolute truth) are believed or practiced in an ideological way (e.g., absolute denial of truth or universality), they may also become a repressive force to those who happen to hold different epistemological or moral viewpoints. Therefore, Nathan's limited application of critical thinking in his closely connected personal and sociopolitical domains (as opposed to his more robust application in the academic domain) suggests perhaps as much

about the quality of his criticality as about the present challenge and obstacles for individuals with significant differences in strongly polarized ideological settings.

In Nathan's case, as critical thinking was associated with such values or extreme practices in his mind (through education and other exposures), it did not seem to have occurred to him to use critical thinking further for a more careful and thorough examination of the "abused" practices he observed in the environment or some of his own strongly-held opinions—i.e., in ways that other students, particularly those in Group I were more disposed to do. At the same time, as a scholarly thinker, an unsettling tension was building up between his more traditional beliefs and the postmodern values associated with rational/critical thinking. Arguably, this unresolved intellectual/moral tension grew significant enough that he had to resort to another strong authority or approach on the seemingly opposite side—religion or religious doctrine as a force that is, as Nathan perceived, "never rational"—to find the affirmation and support he needed for self-preservation or wellbeing. Perhaps had Nathan's understanding of critical thinking been untangled with what he perceived as a set of extreme values or practices,[228] he might have felt more free and willing to further examine difficult controversies and differences instead of reaching for an arguably easy but temporary solution.

At the same time, it may be worth noting that most of the participants in this study did not make such a close association between critical thinking and the extreme practices of liberal

[228] This does not mean that critical thinking, as any method or approach to the world, in itself is neutral or free of any implicit values. As when I asked Nathan about the undergirding values of critical thinking, his response was: "Yes, possibly. For example, its trust for human reasoning—believing that everything can be solved by human reasoning [alone]. Or you may call it rationalism, coming out of the Enlightenment." Yet there is a difference when a set of values is being transmitted in an absolute and ideological way—i.e., without permitting room for differences or dissent on those values or the absolute way in which it should be practiced—does not seem to align with the spirit of critical thinking that encourages questioning and inquiry.

values; in fact, some even commented that such observable extremes demonstrate a lack of or an antithesis of critical thinking. And neither did most of the students appear to have been as strongly concerned with the dominance of liberal ideology and practices. Granted, Nathan's intellectual training in modern history and positionality as an immigrant probably played a role in his greater interest in U.S. politics and concern for the sociopolitical impact of an arguably increasingly illiberal left. Yet his arguably impassioned critique of critical thinking and its "abused" practices may have also been shaped by a strong preference or passion of his own: the preservation of what he referred to several times as "a peaceful life"—a life of physical, mental, and social ease and security, devoid of unhealthy coercions (e.g. power abuse, intense competition, and environmental pollution, etc.). Due to the length limitation of this dissertation, Nathan's selfhood cannot be as fully explored as it is in other cases. However, it may suffice to say that this prioritization for a peaceful existence has been central to Nathan; it was the motivation, as Nathan recalled, for his (and his family's) immigration to the U.S. Arguably, such committed preference or passion for stability and security may have played a role in his particularly strong critique or response to the increasingly forceful liberal practices that aim to change or shake-up the society and all its participating individuals in some fundamental ways. In other words, some of the sociopolitical controversies seem to have been deeply personal to Nathan, challenging perhaps his sense of order and peace. And his limited application of critical thinking on such matters—in spite of his overall strong critical thinking abilities—may, in fact, be a manifestation of his selfhood and its inner passions or fears that could benefit from further examination.

3 & 4. Arielle and Cindy[229]

In contrast to Eleanor and Nathan, who were engaged with issues in the sociopolitical domain as either an active participant or observer, the latter two cases of this subgroup—i.e., Arielle and Cindy—largely eschewed the sociopolitical, in spite of their arguably strong critical thinking capabilities as demonstrated in other domains. In an attempt to shorten the analysis and be mindful of the dissertation length, the two latter cases will be presented together in the following pages. The first two sections of the analysis demonstrate the strength of Arielle and Cindy's critical thinking in the academic and personal domains. The latter two sections explore their limited usage of critical thinking in the sociopolitical domain and highlight, as a possible cause, their focus on succeeding within the varied forms of what may be called the "global neoliberal system."[230] For ease of reading, sectional discussion of each case is signaled by the participants' names noted respectively in brackets—e.g., *(Arielle)*. The analysis of the two cases ends with a short conclusion, highlighting the challenge of teaching and applying critical thinking across domains in the age of individualization and globalization as two sides of the same coin.

1. Critical Thinking Conception & Application in the Academic Domain

[229] Taylor's case is one of the last ones I analyzed for this dissertation. It bears many resemblances to Arielle and Cindy's. However, due to length and time considerations, I will not present Taylor's case here. Data collected from Taylor's are analyzed in the same way as other cases, and pertinent quotations from her will be presented in the general pattern analysis chapter.

[230] In her ethnography of transnational Chinese students who went abroad in the early 2000s, Vanessa Fong (2012) use the term "global neoliberal system" to capture the larger economic force that was driving ordinary Chinese youth to migrate globally for better education, social economic status, and flexible citizenship. According to Fong, "The global neoliberal system is the twenty-first century version of the capitalist world system described by Immanuel Wallerstein…. As the dominant engine of a twenty-first century world with increasingly rapid and efficient transportation and communication technologies, the global neoliberal system resembles the capitalist world system that gave birth to it but locates itself more in the bodies of disciplined, deterritorializable individuals than in particular regions or nation-states" (p. 21).

Both Arielle and Cindy were STEM students who were doing well academically in their respective disciplines. As was common among STEM participants with strong critical thinking practices in this study, neither Arielle nor Cindy seemed to have considered critical thinking to be a salient part of their STEM training. Yet the ways in which they approached their course learning still demonstrate critical thinking elements that were highlighted in their conceptions of what it means to think critically.

(Arielle)

For example, Arielle mentioned "logical thinking" as a prominent part of her academic training, particularly in math. While she perceived logical reasoning to be an essential aspect of critical thinking, it is only one part among many that constitute her broader concept of critical thinking, as described below:

> Critical thinking is about, for example, when you hear a piece of information, you won't believe it right away but consider it calmly rather than react to it emotionally. You would also necessarily not reject any information but take all into consideration. After determining on whether it [information or claim] is warranted or not, you would also check on your own judgment or position…. Another [aspect of critical thinking] is to think independently—no matter how persuasive the other's assertion might be, it's necessary that one thinks by oneself.

Key elements of critical thinking emphasized in Arielle's above description include an independent and questioning approach to any given claim, open-minded and fair evaluation of all available information or evidence, and reflective examination of one's own thinking or judgment. While logical thinking is fundamental to the operation of critical thinking—i.e., as one examines and evaluates the legitimacy of others' as well as one's own assertions—it seems to be so basic that it was not especially highlighted in Arielle's conception of critical thinking.

By contrast, the element of independent thinking was repeatedly mentioned by Arielle throughout our discussions on critical thinking. In fact, she seems to have consistently practiced independent thinking, regardless of whether or not it was fostered or required by her STEM or math courses. As the quotation below demonstrates, such insistence on independent thinking can be occasionally counterproductive to her academic performance—i.e., in courses where, either because of the course content and/or instructor's teaching style—memorization was encouraged or necessary:

> There was a period of time when I wasn't feeling so well and felt particularly discouraged. It was because I had done my best, yet I still wasn't doing well on the tests…. At the time I just thought that thinking on my own to figure out the answers would be the best approach to this abstract course on mathematical analysis. Much later, I realized that it was really like what others had told me: you must memorize the answers and follow the correct approach provided by the answers; otherwise, your thinking would easily deviate and go wrong—no matter how much effort you put into the thinking process. It did dawn on me that there may be things [or concepts] that you can't insist on thinking them through on your own but memorize the thought processes given in the answers.

The quotation seems to suggest that even though Arielle cared about her grades—i.e., feeling strongly affected when she was not doing well—being able to think independently or critically was equally, if not more, important. Even though she conceded to memorization as a necessary learning strategy for some course materials, she also said that being able to think on her own is a habit that has worked out well for her in most STEM or math courses. In other words, whether or not broader elements of critical thinking beyond logical reasoning were required or fostered in her disciplinary training, Arielle had a strong disposition to carry out independent thinking, with a questioning and discerning attitude. We will explore later the reasons for Arielle's insistent practice of independent or critical thinking and its association with her sense of self and life experiences.

(Cindy)

In comparison to Arielle, Cindy expressed less certainty about her understanding of critical thinking; however, her reflections arguably provided greater insights into how critical thinking functions within American society and higher education. In the following quotation, for example, Cindy observes the gap between the purported importance of critical thinking and its actual manifestations in the U.S.:

> Hum, I honestly [haven't] read anything about critical thinking before, and my feeling is that critical thinking is applied to everything in daily life….[Yet] I don't really see the point of emphasizing critical thinking that much….Because from what I can gather, critical thinking is basically the antonym of 'nerd.' That is, teachers want critical thinking students, politics needs critical thinking individuals, and medicine needs [doctors] who don't just absorb what's in the books but have his or her own ideas. I also think that a person who has critical thinking skills would be relatively even tempered—someone who won't react to things with very strong [or impassioned] viewpoints. When comparing different political parties, you would be able to pinpoint the strengths and limitations of either side and make a decision based on overall consideration, rather than just supporting a candidate [or party] as if that is the only choice and everything about it is good. My conception of critical thinking is still kind of vague.

Expressed in the first part of the quotation is Cindy's perception of "critical thinking" as an antonym of "nerdiness." This impressionistic understanding highlights the cultural-situatedness of the concept within what might be called an "anti-nerd" culture in the States—i.e., where studying all the time might be looked down upon, while varied expressions of creativity or individuality are greatly admired. Even though Cindy also senses a more significant connection between critical thinking and knowledge through individual expressions, it seems that without explicit instruction on what it is, critical thinking may function not as a transformative force as its theorists have envisioned but as a mere catchword for denoting what is already valued in American culture.

Also worth noting is Cindy's description of a critical thinker as an even-tempered person in the second half of the quotation. Her particular reference to how an ideal critical thinker would make political choices—i.e., based upon thorough and fair consideration rather than allegiance to a party or ideology—appears to be unusual, given her general reservation about matters of the sociopolitical domain. Perhaps it was an indirect critique or response to the way American politics had manifested during the 2016 election, which left a deep impression even on those who do not typically engage in political matters. Yet interestingly, this ideal of a moderate critical thinker echoes characteristics Cindy described of her parents and their influence on her thinking habits. In other words, Cindy's confusion about what constitutes "critical thinking" may stem in part from the existing thinking habits she had already developed at home in China (without having heard the concept back then) and in part from its uneven manifestations in the U.S (in spite of frequent references to the concept).

In addition to the lack of clarity and manifestation of critical thinking in the larger social and cultural domain, Cindy also observed a lack of pedagogical incorporation or practice of it in the academic domain:

> I know that people [here] often mention this concept ["critical thinking"], but I don't think it's been regularly applied in our studies. I think it's because this is a truly deeper way of thinking that is impossible to incorporate when courses typically last for 50 or 75 minutes. Therefore, I don't think it's an area where Americans do better and Chinese don't. It's a matter of how you cultivate it on your own outside of classes—something you gain through your own thinking [or effort]. Now that I have been here a bit longer, I don't think [the university] does a much better job than community college in this respect, or in comparison to the kind of education I received in China. [Where did you first hear the concept?] I've never heard it in China, [though] I often heard it here—if not in classes, than at workshops or lectures. It's a rather abstract thing. I heard it more at community college, because of the many courses or lectures there centered around how to become a competent college student. Whereas here [at the university], people assume that you [as a student] already have it.

Having attended a community college before transferring to the research university, Cindy makes an interesting observation about how "critical thinking" is presumed variedly at different types of higher education institutions. In either case, however, critical thinking may not have been properly fostered. One reason for this is the institutional structure of higher education itself, in which tight or busy course schedules leave little room for the "energy and time-consuming" process of critical thinking. Interestingly, rather than critiquing the institutions for falling short of their purported commitment to fostering critical thinking, Cindy perceives it as a matter of individual effort or responsibility—a self-reliant mentality that seemed to be common among Chinese students in this study and perhaps beyond.

As a successful student, Cindy did in fact make a genuine effort in adapting to the academic norms abroad; by doing so, she seemed to have picked up additional elements of critical thinking. Coming from a largely test-oriented educational model in China, Cindy immediately noticed the more "open-ended" approach in American higher education that demands a more active and complex learning input from the students. It manifested in writing assignments, group discussions, and lab work—where "often no particular instruction or procedures [were] provided." Most vividly perhaps, this open-endedness manifested in the way exams were handled, as Cindy recounted in the following quotation:

> You have no idea what's going to be on the exam, so you basically study everything. Memorization is the basic part, but even if you memorize everything, it doesn't mean you'll do well on the exam. We don't have any practice test or homework, so it's more like how you [loud stress by Cindy] study for organic chemistry or something. It's not [about] I am teaching you all the knowledge, because I want you to do well on the test, pass the class, and get down with your university life or something. The professors really want you to know the knowledge, to prepare you for future courses, research, or graduate study.

According to Cindy, such an open-ended approach to exam preparation was common among her STEM courses, both at the community college and the research university. Stimulated consistently by this DIY learning environment, Cindy became a more independent and active learner, shifting her focus from test-oriented book learning to what she called “a comprehensive set of abilities.” For example, the ability to gather information and learn from different sources (e.g., books, lectures, teachers, and peers), and the ability to discern what might be important to review for the exams and what she would wish to retain for her own use in the future (e.g., subsequent courses, research interest, or career development).

Arguably, such independence and agency may further develop her interests and sense of self and her awareness of larger concerns beyond mere tests and grades—e.g., real world applications and problems to which her learning can be useful. As explored earlier in the literature review chapter and other case analyses, sensitivity to problems and affirmation of the self are essential for the operation of critical thinking. In fact, Cindy noticed a change in the way she related to knowledge, which may be related to the strengthening of her independence, agency, and by extension, critical thinking. Whereas she studied diligently for test purposes before, she now “really care[d] about knowledge”—i.e., connections between different levels and areas of knowledge and its relevance to her as a problem-solver or research designer. Such deeper thinking about knowledge itself—i.e., how “to apply and extend the knowledge you learn in class”—and using it for independent problem-solving or “figuring out [a solution] on your own” were new to Cindy about the educational culture in the U.S. and thus constituted how she later defined “critical thinking.”

Given what Cindy was able to grasp from her courses vis-à-vis critical thinking dispositions and skills, it may be argued that even without explicit instruction or intention, American higher education may be succeeding in fostering students' critical thinking development—i.e., through implicit means or pedagogical structures, such as open-ended course assignments and exam preparations. Yet as we will explore more extensively later via Arielle's account, this sudden freedom and responsibility can be as confounding for some Chinese students abroad as it is invigorating for others, like Cindy. Moreover, most participants in the study did not describe the benefits or consistency of this DIY educational model to the extent that Cindy did. In other words, it is possible that many students may not be able to pick up the elements of critical thinking embedded with this implicit and structure-less approach. Even for Cindy who did seem to further her critical thinking ability through a keen ability to observe and reflect, she felt that occasions for her to think critically were few and largely unnecessary for achieving good grades in her courses.

In short, two main takeaways can be drawn from Cindy's account of her perception and application of critical thinking in the academic domain. That is, on the one hand, the actual application and requirement of critical thinking in American higher education may be more limited than its purported significance. And such observation from Cindy's account of critical thinking in the academic domain seems to align with most of the other students' reflection in this study. On the other hand, Cindy's observation and questioning of the actual importance of critical thinking in American education may suggest a candid and independent thinking disposition essential of a critical thinker.

2. Critical Thinking in the Personal Domain

(Arielle)

Beyond academics, critical thinking may have played a more significant role in the intrapersonal and interpersonal domain of everyday life for Arielle and Cindy. This was particularly true for Arielle, who described critical thinking as "very important" to her and even provided the same brief written response "very important" to the online question: "when you hear the phrase 'critical thinking,' what comes to your mind?" In addition, in explaining both her critical thinking learning process and application in the online questionnaire, as quoted respectively below, her references were often drawn from the personal (i.e., intrapersonal and interpersonal) domain:

> Learn from observing people and experiencing; learn by mistake.

> How to judge people discarding personal emotions [i.e., how to have a fair evaluation or understanding of people by minimizing strong emotions tied with one's personal interest or bias]; How to decide on priorities of activities; How to treat people's criticisms and bad attitude.

Arielle's responses above need unpacking or clarification. First of all, the second quotation about the instances of her critical thinking applications shows that the kind of critical thinking issues that came foremost to her mind were in the personal domain. Recall that her conception of critical thinking, as mentioned earlier, entails more general elements (e.g., open-minded and fair evaluation of information or viewpoints) that are applicable across domains. The contrast between her more general conception and more domain-specific applications seems to suggest that while critical thinking can be applied to other domains, such as the academic, its most prominent role for Arielle resides in domain of everyday life. The idea of being aware of one's emotion and the necessity to minimize strong emotional impact on perception may be an insight

into the development and operation of critical thinking in the personal domain; it will be further discussed in a later section.

Secondly, the first of the two quotations above about Arielle's critical thinking learning process demonstrates that she had acquired it largely on her own, outside of formal education. When I asked her to expand on what she had meant by "observing people" and how that shaped her critical thinking development, Arielle had the following response:

> I meant observing those whom you admire—or consider to be quite mature, successful, and composed—on how they live or conduct themselves; doing so can help you learn something from them…. I think such accumulation of life experiences can help develop critical thinking. It's not something that formal education can [or does] teach you; rather, how to make judgment calls, live your life, and develop your emotional intelligence are things that you have to pick up on your own…through actual experiences or practices.

One may notice from the quotation that while the link between "observing people" and "accumulation of life experiences" seems to be direct, the purported connection between such gathering of life experiences and critical thinking (i.e., for the domain of everyday life) may be less obvious. The implicit connection between others' experiences and one's own critical thinking development may be illuminated by recalling Dio's (in Group I) description of her use of Chinese astrology or fortune telling as a channel for her to access a large amount of stories of how others have lived. Perhaps for Arielle, as it was for Dio, the active gathering of experiences or stories through observing and conversing with other people provided them with possible blueprints, data, or evidence upon which an overarching understanding may be forged of how life works or can be better lived. In fact, Arielle did refer, at one point of the interviews, to this accumulation of experiences as "a constant gathering of numerous information." Such process of information gathering or knowledge formation may have helped her, as for other participants like Dio, feeling equipped to think carefully or critically about how to make their own life choices.

Granted, the difference between Dio and Arielle was also apparent, in spite of their shared characteristics in being generally curious, independent, and persistent. Dio was a sophisticated and avid reader, who habitually sought "comprehensive understanding" (in her own words) of situations before committing herself to action. By contrast, Arielle described herself as a "picky reader" (i.e., who recognizes the importance of reading but does not typically like to read) and often emotional and strong-willed in having to experience things for herself first (i.e., before seriously considering others' advice or admonitions). Her account on how she learned critical thinking—i.e., through her own experiences and mistakes, in addition to observing and gathering experiences from others—reflects this more emotional and headstrong side of her selfhood that Arielle was in fact aware of and mentioned frequently throughout the interviews.

For example, Arielle mentioned one such learning experience or "mistake," which has to do with a strict but prevalent regulation in the Chinese education system that forbids high school students from dating:

> I've always found it hard to believe that they [school or authority] can simply come up with a rule and expect me to follow accordingly—I haven't tried it, why should I think it's wrong or bad? So I would simply ignore school regulation against early dating or things like this and try it for myself.

According to Arielle, her trial and error attempt led to a bad experience. She referred to it vaguely in the interviews as a "sexual assault," adding that it would have left her, like many others with similar experiences, "traumatized or suffering from low self-confidence" had it not been for her "generally optimistic disposition and will to 'turn grief into strength'[231]." Interestingly, rather than doubting her judgment as a result of the precarious experience, Arielle saw it as a call for

[231] The Chinese phrase she used was "化悲愤为力量," which can also be translated as harnessing the energy (from grief or bad experience) and use it to do something good.

more practice to improve her ability to think and to make better judgments in the future. And instead of feeling thus compelled to defer more to others who might be more experienced, Arielle concluded: “I think it is not about believing that your thinking ability is the best but that it must be exercised [in order to improve it].” Moreover, believing that “there are not too many ways to improve your ability to make judgments or decisions, other than to reflect after each instance, consider its consequences and how you could have made it better,” Arielle actually refused to see this specific instance of distress as a “mistake” (though the idea of making mistakes and learning from it was mentioned in her initial online questionnaire response). Rather, she interpreted or defended what she went through the hard way as a necessary experience or pathway, “without which I might not have learned to be more cautious [in the future].”

Yet while traumatic or precarious experiences certainly arouse strong emotions and such emotions may prompt reflection or critical examination of one’s experiences, it may also be argued that one purpose of critical thinking is to minimize potentially regrettable experiences or decisions. In addition, as can be seen in other participants who were more temperate in demeanor, like Dio, observation of others’ experiences and careful consideration of the situation constituted a significant part of preparation or critical thinking before action, rather than the reverse—i.e., action or experience as precursor or preparation for critical thinking—that Arielle seemed to emphasize.

Granted, even Dewey, one of the original proponents of critical or reflective thinking, emphasized the importance of experience in learning and growth of a person. While the centrality of experience in Dewey’s philosophy of education seems to echo Arielle’s assertion quoted above, thinking and experience are closely associated or intertwined for Dewey, as his

concept of "experience" necessarily entails reflective or purposeful thinking that directs and improves one's experiences. In other words, Arielle's assertion of the necessity of having experiences or trying things out for oneself—almost regardless of the experiential qualities—may be slightly overstated. Such overstatement seems to offer a partial insight into how we learn to think with experiences, on the one hand, and a reflection of Arielle's strong-willed selfhood, on the other hand, which consistently strived for self-affirmation and resilience in the face of setbacks.

Aside from the importance of having experiences, "emotion" was another key concept or insight in Arielle's perception of critical thinking in the domain of everyday life. As a self-reflective person, Arielle was aware of the unruly nature of her strong emotions and how they had impacted or skewed her judgments at times. She said, for example, "if you feel very angry about an issue, you would then, in terms of making judgments, your emotion would hamper your judgment of the issue." Perhaps as a result of her own experience with strong emotions, she repeatedly highlighted the necessary emotional quality of a critical thinker—i.e., someone who thinks "very calmly" or is capable of minimizing emotions from its overpowering effect on a more objective or balanced understanding. Such emphasis of an ideal affective quality seems to have guided Arielle in her own practice of critical thinking, helping her to be more cognizant of her immediate emotional reactions, more reflective of her own attached viewpoint, and more open toward a fair consideration of the situation at hand.

At the same time, perhaps coming to her own defense again but also sharing a genuine insight from her experience, Arielle asserts that emotion or "emotional intelligence" constitutes a necessary part of one's critical thinking development and application in the personal domain:

> To do critical thinking, you must [first] be able to perceive the world; without emotional intelligence, you won't be able to develop such perceptions. That is, for example, what others do or what you experience for yourself must have some impact on you, or you wouldn't be able to learn anything or begin to think about certain issues. I believe that without being moved somehow at the emotional level, thinking won't be initiated. That's why, in an essay I wrote for a writing competition, I argued that technological develop needs impetus from the humanities. This is because you must touch mankind or some people at the thought level, in order to spark their thinking and creativity.

In light of the passages above suggesting both Arielle's cautionary attitude toward emotions and validation of its function in the overall development of a person, a connection among the three components— emotion, experience, and critical thinking—comes to the fore. That is, from Arielle's perspective, strong emotions may more readily prompt one to respond, take actions, and undergo experiences, and such experiences become the basis for one's thinking or reflection. Less explicitly articulated by Arielle is also that such reflection of one's experiences may trigger a more critical examination of one's emotions that had initiated the experiences or actions in the first place. Gradually, through this critical or reflective process, raw emotions may be transformed into "emotional intelligence," helping to improve one's perceptions and future experiences. In other words, a complementary or mutually strengthening relationship can be seen in Arielle's conception of critical thinking, experience, and emotion. Arguably, her emphasis on the emotional component of critical thinking offers a largely missing insight in the literature about the working and development of critical thinking in the domain of everyday life, particularly for individuals like Arielle whose selfhood may be innately more impassioned than others.

(Cindy)

By contrast, critical thinking in the personal domain did not seem to have occupied as obvious a role for Cindy as it did for Arielle. While Arielle's description of critical thinking

centered consistently around matters in the personal domain, starting with the way she learned critical thinking via observing other's experiences and reflecting upon those of her own, Cindy's articulated conception and examples of critical thinking resided mostly in the academic domain. Yet in spite of Cindy's perception that "critical thinking" was a new to her before college in the U.S. or that her application of it in everyday life may be scant, her actual development of critical thinking may have begun much earlier. In addition, her actual usage of it in the personal domain also appeared to be much more frequent than she could recognize.

Some of Cindy's critical thinking dispositions and skills may have been fostered since early childhood, by the way her parents guided her. For instance, she mentioned that every time she received a school exam back as a child, her parents would ask her "not to toss the exam right away after finding out the score but to see why mistakes were made and how to avoid them for the next time." Likewise in everyday life, Cindy added, "whenever I made a mistake, they would not criticize or scold me but ask me to think what I have learned from the mistake and how to avoid it in the future." Although more Chinese parents in the recent decade are adopting a gentler and more communicative approach to parenting, the reflective rather than critical (i.e., meaning quick at criticizing in this context) parental style practiced by Cindy's parents still seemed to stand out. Through her parents' thoughtful and open-ended guidance, Cindy developed a propensity for self-reflection, stating that she finds it "meaningful…and good to reflect on your experience and give feedback." Such reflective quality and ability to give and take feedback seemed to have played a vital role in her learning and success abroad—e.g., enabling her to quickly adapt to the open-ended educational approach in the U.S. and grasp the embedded critical thinking elements necessary for the academic domain. And these dispositions of self-

reflection and seeking-for-improvement were also highlighted in the conceptions and practices of Group I students—those with strongest critical thinking demonstrations.

In another example, Cindy vividly recalled her mother expanding her thinking beyond the binary of good vs. bad:

> I remember when I was little, one day I came home telling her that the Japanese are so bad—they are the worst people on earth. My mother responded: You can't say that they are all bad, just as you can't say we [Chinese] are all good. There might be many reasons [for what they did during the war]; for example, their soldiers were commanded by general[s], their people were brainwashed into believing that, as a small country, they must expand their territory. From their perspective, they may not be sinners or evil; but from ours—those who were invaded, they may be the worst in the world.

The perspective shared by Cindy's mother is likely to be controversial and atypical among people in China and other parts of East Asia that experienced war atrocity during the Japanese expansion in the first part of the 20th century. The mainstream position taught in school is reflected in Cindy's original claim, which condemns the nation that brutally invaded China. Leaving aside the legitimacy of such an empathetic or charitable interpretation, the account suggests that Cindy was guided from a young age into thinking in a nuanced and contextualized way. This more complex approach—entailing multiple perspectives, non-binary evaluation, and contextual consideration—and the willingness to understand the other with empathy constitute some of the essential characteristics of critical thinking, as highlighted by theorists in the literature and students in this study.

Such guidance from her parents on how to think thoughtfully and thoroughly seemed to have continued for Cindy while she was in college abroad. While she contacted them regularly for consultation on almost every decision big or small, her parents' responses seemed to remain consistent and open-ended. That is, instead of giving her a quick judgment or opinion of what

they think is good or bad, or what she should or shouldn't do, they typically asked her for a detailed rationale or thought process: e.g., a list of pros and cons of various options that could explain her eventual decision. Perhaps as a result of this continual guidance or training, Cindy exhibited a sense of ease and confidence in actually approaching issues and decisions on her own, in spite of her apparent dependency on parental affirmation or input.

For example, in making the big decision about what to pursue as a future career, Cindy demonstrated both self-knowledge (e.g., her interest in the biomedical field) and openness to explore new options (e.g., other subfields she may not yet know about/in addition to dentistry that she had originally planned), as evidenced in the following quotation:

> It [dentistry] wasn't a fixed goal, as I am changing my mind constantly. In the [previous] quarters, I went to a lot of speeches by people who have professional careers in the medical field. Dentistry is a very small part of the medical field. What I prefer now is to do a two-year master's program that would allow me to further define my interest, instead of jumping into a four-year dental program just because dentistry promises a respectable and financially rewarding career…. The courses I have taken are fairly foundational, so I haven't gained a clear understanding of what I can do in the future. But through the talks, I realized that I might be more interested in neuroscience-related research. Perhaps it has to do with my family history with migraine, so if I can make a small contribution in this area, I would be very happy. In other words, I know that my general interest is in the medical field, but I have yet to determine which subfield will interest me the most.

Cindy's thought process suggests that while she has a plan for pursuing dentistry—based on her interest in biology and practical considerations, she is also open to making changes based on new understanding or better knowledge of the vast field of medicine and its available options. Rather than feeling anxious about the uncertainty and torn by the dilemma between one's intellectual vs. practical interests (or "what everyone else seems to be pursuing," which Jiayi struggled with), Cindy appears to be enjoying the open-ended uncertainty and delighted in discovering new options that might be more meaningful to her. In other words, the way Cindy approaches

decision-making seems to center largely around an understanding of herself (e.g., what interests and matters to her the most) in relation to the world, rather than an external standard of what is best to pursue.

Arguably, Cindy's relative ease and sense of agency with making important or challenging decisions was supported by the numerous dispositions and skills she had been developing since her youth, guided by parents who gave her relatively uninterrupted space to reflect and think for herself. Consequently, she was used to open-ended questions or inquiry, trained not to be fearful of making mistakes, and apt at making improvements or adjustments upon further reflection or knowledge. While such qualities may have been acquired subconsciously by Cindy as a natural extension of her parents' guidance and their way of being in the world, they are also elements of critical thinking, particularly applicable to the domain of everyday life.

The scenario described below is arguably another example of Cindy's application of critical thinking in the personal domain, though she did not seem to recognize it as such:

> I joined the fraternity [for community college transfer students] last quarter and participated in the voting process for new members this quarter. There was a very introverted applicant, who could not strike conversations easily with others, and so they wanted to vote against his application. I then shared my position, arguing that this [introversion] should not be the standard by which we vote against a person. We should help to foster his growth and create an environment for him to improve socially. We may reject an applicant because of his or her alcohol problem or tendency to dramatize things, but we should not reject a person just because of his taciturn disposition. Others actually accepted my viewpoint, so this boy is now part of our frat.

The same confidence and ability to think for herself that she exhibited in personal decision-making is also manifested here, as she candidly expresses her alternative perspective at the fraternity group meeting. Just as Cindy mentioned appreciating the new ways of studying (i.e., with a group rather than by herself) and socializing with her domestic friends at the fraternity, it

is also clear from this quotation and others that she also enjoyed sharing her perspective that can broaden the scope of understanding and inclusivity of her peers. Without stating it explicitly, the cheerful voice in which Cindy narrated the incident suggests a sense of accomplishment or pride in herself for having made a meaningful difference.

Yet as we shall see in a later analysis, such forthright expressions of her opinion or a dissenting voice may have been more of an exception than a norm for Cindy. That is, the ease in which she asserted herself in a generally open and inclusive peer group environment abroad may be significantly reduced, when she was faced with larger concerns in a more hierarchical and familiar Chinese environment at home.

Meanwhile, it may be worth nothing that the one instance Cindy did mention as a likely application of critical thinking in her everyday life is a question she had been asking persistently: "Is it true that in [your country] parents prefer to have a son over a daughter—this is the question I ask people all over the world for some reason." According to Cindy, this question allowed her to find out that such gender preference or differential is more prevalent in Asia than in Europe, and the question constitutes an instance of critical thinking because "it's not superficial but asking about something embedded in different cultures." Sensing that this topic may be of particular importance to her (given the persistence with which she explored the topic yet the common-knowledge finding she obtained), I asked Cindy why she had been asking this question or what made it intriguing for her. Cindy seemed to initially evade the question—though she would become more comfortable unpacking its significance in a later interview—by quickly responding: "I am just giving you an example; I ask some other questions too."

3. Less Critical Thinking in the Sociopolitical Domain

(Cindy)

One aspect of critical thinking that seems to be missing in Cindy's application of it is perhaps the readiness or propensity to question and explore social or political norms that are problematic in an apparent or deeply personal way. Ideally, critical thinking is applied not only to knowledge claims in the academic domain, but also norms and practices that shape experiences in the personal and sociopolitical domains. Such problematization of knowledge and society is considered vital for the quality of life at both the individual and the collective levels, central to the works of Socrates and Dewey, or two key originators of critical thinking.

The persistent question Cindy asked about gender preference across cultures did in fact reflect a larger socio-cultural issue—i.e., gender differential or inequality—that seemed to have shaped her experience and trajectory in a subtle but pervasive way. For example, although Cindy felt that she had "never been told that I should do this or I shouldn't do that" in terms of academic pursuits as a girl, there was an implicit understanding or expectation on how young women should plan their life and career trajectories, as she expressed below:

> I really [louder emphasis by Cindy] don't want to say that, but that's the real life situation here. It's still, nowadays, it's still a patriarchal society. So I would say if a woman can focus on working in her 20s to 35, and [then] she devotes more time on family—that's the general thing. If you spend too much on your career and do like science research—it may take 30 years and you achieve nothing—that might not be practical for a woman to do that. But I'm not saying that women can't do it; it's just no common. And one reason for me to choose to be a dentist, is the work time can be flexible….I may change my mind any time: because I will spend 4 years in dental school, and by the time [I graduate], I'll be like 25. I feel that's kind of old [laughing]!

Ideas or ideals on what and when a woman should do certain things in life seem to be prevalent in China, as many other female participants in this study also mentioned similar gender-based

pressures—though typically with a more resistant or contrarian attitude toward such impositions. From their perspectives, these gendered prescriptions felt like anachronistic nuisances, contradictory to the notions of equality, ambition, and excellence that had, in fact, been fostered in them (as singletons in most cases) all along. By contrast, Cindy's position, as demonstrated in the quotation, appears to be more acquiescent, focused largely on accepting/adapting rather than questioning/problematizing the conditions within which she must operate. The louder voice in which she uttered the beginning part of her response seems to betray a sense of controlled frustration about the mixed messages that were shaping her experiences as a female. At the same time, Cindy seems to have largely accepted or internalized the more traditional sense of womanhood, as indicated in the way she carefully considers her future plan in light of the prescribed ideal timeline and familial role for women.

In the second interview, Cindy was more open to sharing her thoughts or motivation undergirding the question about gender preference, as captured in the following quotation:

> That probably has to do with my family situation. This is because both of my parents have received very advanced education—as college graduates in those years [when it was rare for people to receive university degrees]. Yet my father still hold traditional views like *I have to have a son in order to pass on the bloodline*. So I have been quite curious as to why this is so, because he already has me and my younger sister—two daughters who are quite excellent in many ways—yet he still insists on having a son. So I would want to know, *is this also true in other Asian countries*…. [Have you asked your dad about the reason or do you understand the rationale behind it now?] He hasn't discussed it with me in-depth. He did mention briefly, however, the continuation of our last name, which is quite rare… and the idea of having both son and daughter, among other perhaps symbolic meanings. I just don't understand, so I wanted [to ask].

Embedded in Cindy's even-tempered utterance seems to be a mild sense of dismay, in addition to her explicitly mentioned curiosity, about the manifestation of the gender differential at home. The fact that such a manifestation came from her father may be particularly hard to grapple with

for Cindy, because she saw him as a role model in many ways. It also seems that Cindy has an intuition that it would be a sensitive topic to discuss, much less to challenge, with her father—an educated person who exhibits both liberal/Western sensibilities and traditional/Chinese mentalities. Being deferential and respectful of her father, Cindy politely channeled her questioning curiosity or doubts into a conversational question that she would explore with others. In other words, even though Cindy has come close to identifying and problematizing a larger social issue—gender inequality— within her experience, she diverted the problem by casually exploring it outside of its immediate context.[232]

This disinclination to directly engage with issues in the social or sociopolitical domain was consistently expressed by Cindy, whenever our discussions touched upon such topics. While Cindy's natural interests elsewhere—as expressed in her academic major in a STEM field and extracurricular activities around music and singing—played a role in her lack of engagement in this domain, her family also seemed to have had a significant influence on her general approach in this area. According to Cindy, even though her father was a lawyer, politics was rarely discussed in her family and "he doesn't hold very strong opinions about the president or something." Her father's detachment from politics seemed to make good sense to Cindy, as she explains in the following explanation:

> I don't feel we talk about politics a lot in China, like we don't get involved a lot, like we don't' have the power to contribute to specific rules or something, like only small amount

[232] Granted, such exploration outside of the problem's immediate context should not be underestimated. That is, perhaps by gathering numerous alternative gender practices across cultures via casual conversations, Cindy may in fact be building her confidence and impetus to challenge the firmly established gender differential in her familial context and immediate experiences. On the one hand, such change may take place, given also her reflection in one interview: "So I would say people have different values and that would shape you to be a different person." On the hand, given her prioritized focus on her academic and professional development and preference for going back to China or East Asia where gender differential is pervasive (as she concluded from her casual conversations), a potentially more active engagement with the larger problem may continue to be deterred.

> of people are in the congress…. People [in the U.S.] is free to give any speech, but the people who have strong opinions about politics, they don't necessarily know a lot about politics. So they may not be giving right information all the time. And although we don't get involved in the politics a lot, I feel like China is getting better and better. Like I only know about Xi dealing with corruption in China—that's probably the only thing I know. But it's improving. Although we don't criticize about it, we can see it's getting better. So it's probably not a bad thing to stay away from politics and let people who're involved in the situation to do their job.

In other words, even though people in China, like Cindy and her father, may be aware of the limited political freedom they have under a non-democratic government, they seem to have largely accepted this restriction as a trade-off for living in a country that has achieved extraordinary development and economic transformation within a relatively short period of time. With the substantial increase of personal wealth for Chinese citizens in the recent decades, particularly for well-educated and financially prosperous professionals like Cindy's father, the focus for individuals may have shifted further into areas of career ambition, personal cultivation and leisurely activities. As Cindy mentioned, her father enjoyed many interests outside of his vocation in law, and by the time she started her education abroad, her family had already vacationed in eighteen countries. While such extensive travel and exploration of personal interests seemed to stand out among the older generation of Chinese parents, more and more Chinese citizens have been enjoying greater physical mobility and expansion of interests and skills.

In short, it may be argued that in the age of globalization, people in China are able to develop more varied personal pursuits within or outside their country. While such individual engagements invariably help to expand one's horizon and connect with the other to various extents, they may also function as diversions or incentives that contribute to a greater disinclination among people to engage with sociopolitical concerns, especially when doing so can

easily threaten the quality of life they enjoy under a tight political regime. Growing up in such a context—one that is arguably further reinforced by the apolitical stance and gender hierarchy at home—Cindy developed an intuitive awareness and disinclination for applying critical thinking in the sociopolitical domain. While her otherwise strong critical thinking attributes and positive experiences in expressing herself in the new and freer environment abroad may continue to grow, possibly propelling her to eventually engage more critically and openly with sociopolitical issues, such development would probably depend significantly the future environment she choose to inhabit. At the time of the interviews, Cindy expressed consistently a desire to return to China or somewhere closer to her family after further education and training abroad.

(Arielle)

The lack of sociopolitical engagement may be more surprising in Arielle's case, as she was more impassioned, disposed to question authoritative claims, and ready take action in ways that showed an independent and even defiant spirit. Speaking from her own experience of sexual assault, for example, Arielle did point to the vulnerability of girls in China due to a lack of sex education and the correlating awareness and support that such an education can foster. As a self-proclaimed feminist, Arielle also critiqued the pervasiveness of gender inequality and the various constrains she had felt as a female in China. She thought highly of the emphasis on sex education in the U.S. and even engaged in conversations about feminism with a domestic student activist, as she recounted in the following quotation:

> The student I spoke with had the view that women should not try to maintain a slim figure but rather be free to do whatever they want with their bodies—i.e., my figure is beautiful in whatever shape it is. She was also against cosmetic surgery or whatever one does to change [improve] one's appearance. I don't really understand this, because I don't think

> these things are wrong. I think she was being too extreme, like other feminists: that I have to do something radical to prove that we [male and female] are the same. I just think it's completely unnecessary. But something else she said later made a lot of sense to me: she told me that the reason why I think in this way is because I already believe in gender equality; for those who [e.g., women believe and/or live in patriarchal systems] have not yet embrace such a view, extreme actions—those that can strike a nerve in them—have to be taken in order for any change to happen. I could also sense that from her perspective, women who care a lot about how they look are objectifying themselves by adopting a particular standard [of beauty]…. This is how they [feminists] see it, and I think there's a point to it.

Arielle's account above demonstrates a number of critical thinking dispositions: e.g., a contextual awareness of the larger cultural norms that shape women's experiences at the individual level, which has probably contributed to her identity as a feminist (albeit different from what she perceived as a radical or extreme version of it prevalent in the U.S.); a curiosity to explore different points of view that led her to have in-depth conversations with the feminist activist; an assertiveness to support her position as someone who in fact enjoys beauty and fashion with an arguably persuasive rationale; and an openness to consider and understand a contending viewpoint within the context that it comes from.

In comparison to the prevailing feminist view that seeks to deconstruct the idea of femininity prescribed by the predominantly or implicitly patriarchal systems that have traditionally subjugated or objectified women, Arielle's version of feminism was, as described in her own words, "atypical." Her view of feminism is about choice or freedom to choose, aligning perhaps more closely to individualism rather than feminism, as she said: "I don't think females have to do all that males can or force themselves to do things just to prove themselves as feminists; it would be sufficient to choose [freely] according to one's wishes." Such freedom would include an ability to pursue feminine products or fashions that happen to be in vogue or attractive to one's taste—i.e., without having to necessarily examine the possible history or

historical significance of such aesthetics nor the role or implication of one's choice in the on-going struggle for gender equality at the collective or sociopolitical level.

While Arielle's version of feminism may seem to fall short of the kind of criticality espoused by critical/activist theories, it may be argued otherwise, in light of the kind of pressure she might have faced in her own cultural context. That is, growing up in an environment where individualistic expressions may be largely discouraged and choices were particularly limited for girls, Arielle's insistence on choice or being free to choose expresses a defiant spirit.

> To strengthen this character [i.e., general optimism about life and society], one might want to practice regularly—for example, something that I think might be a problem for [people] in China is that very few of them would say "no" and pursue things that they really like. One must pursue what one likes and say "no" to things that one detests or don't want to do. This is because only then, would one be truly happy and feel that life is wonderful. And such memories can stay so firmly in your mind that they would outlast those that are difficult.

Such strong assertion to stand by her preference and resist pressures that others might have found necessary to give in may, in fact, embody a defiance that is not so different from that expressed by the more "extreme" feminists in the U.S.

At the same time, it may be important to recognize the difference, in the earlier quotation, between the ways in which Arielle and the student activist each engages with the issue of gender inequality. That is, the student activist approaches the issue at a sociopolitical level, advocating strong expressions that aim to provoke and create a more fundamental change of the system or cultural norms that continue to objectify women in numerous and significant ways. In comparison, Arielle's approach is notably more individualistic and intrapersonal. That is, it appears that her "feminist" defiance aims not to change the system—i.e., to engage in a power struggle for better equality—but to abide her own preference or authority. Yet without explicit

struggles, absence is perhaps more likely, as in Arielle's case, in further examining the rationale and legitimacy of either side of the contention.

Additionally, it may be worth noting that this individual-orientation in Arielle's approach may have also stalled her thinking on the topic of gender inequality that was important to her. That is, even though the exchange of different views on what it means to be a feminist seems to have broadened the scope of Arielle's understanding of the undergirding sociopolitical and cultural issues, her exploration of the topic did not seem to extend much further after the promising start. Rather, her position appears to be fixed around a self-affirmational conclusion, as evidenced in the following response:

> [Did your understanding or appreciation of the other feminist's viewpoint change your own in any ways?] I still stand by my point of view, which is that I should be able to do whatever I want. They [feminists] believe that you should do something extra to prove that we are equal, but I don't think such actions necessary. This is because I can feel it in my bones that we are the same or equal, so there's no need to do something in particular [to show or justify that].

Arguably, Arielle's assertion defending her individualistic and apolitical position appears legitimate, for she feels with strong conviction that she is or has a way to be above the subjugation of gender inequality. Yet apparent in her assertion is a lack of concern for examining the pervasive norms that continue to define and limit women as a whole to varied extents—not excluding Arielle herself in ways that may be subtle or less obvious to her.[233] In addition, while

[233] A reader of the draft reminded me that feminist scholars have been using a term "choice feminism" to describe this individualistic and apolitical orientation of feminism that has been, in fact, quite popular in the recent decades (Ferguson, 2010; Freeman, 2016). The prior feminist movements that were inherently political: they critiqued the traditionally male-dominated system that has largely excluded women's perspectives yet defined women's lives, standard of beauty, concept of motherhood, etc.; they aimed to reimagine and recreate a more gender-equal world, with the assumption that those in or aligned with existing authority would be offended. By contrast, choice feminism emphasizes women's "empowerment" through the choices they make—basically any choices, be it for or against traditional femininity. In many ways, choice feminism seeks not to challenge or offend the existing system that may continue to define and limit women but to highlight women's responsibility as individuals to exercise their freedom

it is debatable whether or not a strong critical thinker, who considers issues carefully across the domains, should necessarily take sociopolitical actions, there should at least be some form of examined awareness or recognition of the potential consequences and limitations of one's chosen position—for oneself and for those, far or close, who might be affected by one's actions or inactions.

As it was with Cindy, there seemed to be a number of different reasons contributing to Arielle's lack of deeper engagement with the broader, sociopolitical issues that she apparently cared about. One reason, as quoted below, may have stemmed from her belief or assumption that if one is to speak up, it has to be effective; moreover, one's social influence or power seems to be presumed to be the foundation of this effectiveness:

> [Where would you like to live in the future?] Anywhere would be fine, as long as one's mind is relatively [open]. But sometimes, I would see certain things [in the Chinese social media] that can make me very angry. [Have you done any activist work, resulting from such feelings?] No. It's because I think if one is to do something, it has to be effect; if it

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and power to make choices for themselves. Yet as scholars have pointed out, such concept of "choice"—one that does not interrogate the larger sociopolitical and socioeconomic background that shape or limit the choices that are made available through the marketplace—is misguided, especially in today's context of neoliberal global capitalism. Some feminist scholars have, therefore, also called choice feminism by another name— "neoliberal feminism"—to further highlight its alignment with "the market values of neoliberalism" (Budgeon, 2015, p. 313) and its problematic nature to the traditional feminist agenda or the goal of equal participation and power for women across various domains of life. In other words, the original feminist aspiration may have been submerged by neoliberalism, as the market-driven system, as Rottenberg (2014) argued, "colonise feminism while remaking it in its own image, transforming collective liberation based upon a commitment to the common good into a limited form of individuated self-care" (p. 433).

It is worth noting that the following quotation summarizing the characteristics of choice or neoliberal feminism does seem to describe some of the individual-oriented positions Arielle expressed in the interviews: "at the centre [of choice/ neoliberal feminism] is a highly individuated female subject who, because she understands that inequalities between men and women exist, is interpreted as a feminist, but her response to the knowledge that inequality remain is to take full responsibility for pursuing her own ambitions and creating a meaningful life through personal self-transformation." (Budgeon, 2015, p. 313). Yet at the same time, extra care may also need to be given in analyzing Arielle's position via these concepts of "choice feminism" or "neoliberalism feminism." This is because as someone coming from an environment that traditionally limits or defines women through controlling or inhibiting their freedom to choose, Arielle's exercise of her power to choose is an arguably defiance or challenge to the authority. Granted, the meaning of her choice may change when she moved to a freer environment abroad. In this new context, choice made without care for its larger sociopolitical implication may indeed be antithetical, as scholars have argued, to the actual feminist agenda for "the common good."

> won't be effective, then [pause]. I read about the child abuse case [a widely reported incident at a Kindergarten in Beijing], but there is not much [I] can do right now. The only thing that can be or must be done is to increase [one's] influence; only then, can one solve problems or have any impact with what one has to say. Otherwise, it would be useless to just worry or feel angry about it.

Arielle's response above seems to take for granted not only a high standard for the quality of ideas that can be communicated publicly, but also that individual who have quality ideas to express—i.e., he or she has to earn the right to speak up through preexisting credentials or power. While such arguably stringent standard on the individual and his or her ideas may contrast with the more casual approach to individual expressions practiced in the U.S., it is not unusual among Chinese. Scholars have observed how even the younger generations in China, who typically enjoy more individual freedom than earlier generations, still understand individual rights as privileges to be earned (Yan, 2009), rather than birthrights typically presumed by citizens in some other parts of the world, like the U.S. And this perfectionist standard for what and when one can speak up in public was also commonly expressed by participants in this study, as one of the main reasons that can inhibit them from readily sharing ideas in class discussions. On that note, participants would often add a reflection of both envy and critique about domestic/American students, for their (American students) apparent ease and sometimes a lack of quality with the ideas they share.

Arielle's assertion of the hierarchical/power criteria for communication seems to suggest an understanding of the relationship between the individual and the collective that is quite different from that typically understood and taken for granted in the U.S. That is, in the U.S., or in a context where individualism prevails, people are more likely to be confident in themselves as individuals and in their ability to make changes to the collective or society. By contrast, in

China, or in a context where the collective has traditionally overpowered the individual and individualism is largely repressed, people are less likely to believe in an individual's power to sway or change the collective or society—unless the individual has found a way to rise above the collective, which typically means that the individual has excelled in the standard or norm espoused by the collective and has thus gained the power to influence its decisions. Therefore, seen from Arielle's own context or perspective, her assumptions about the hierarchical/power criteria of communication would understandably inhibit or delay her from engagement with sociopolitical issues in a more public way.

Another reason for Arielle's reservation to speak up, which is perhaps not unrelated to her perfectionist standard for public communication, is mistrust of the other—e.g., fellow Chinese students abroad, whose viewpoints differ and with whom one is engaged in a broadly competitive relationship. Even though Arielle took pride in her traveling experiences, where she actively explored foreign cultures and sought to interact with local people and learn from them, she shared a more skeptical view about communication among her Chinese peers. She felt that many Chinese students at the university (outside of her friendship circle, which consisted of Chinese students) were often competitive and judgmental rather than interested and well-disposed. Such description of the internal factions or mistrust within what outsiders or scholars have referred to as tight-knitted "enclaves" of Chinese students across university campuses abroad was, in fact, not uncommon among participants in this study.

In her following response to my idea of possibly doing a focus group as part of this research study, for example, Arielle tactfully expresses her resistance to such an arrangement,

citing that a similar background or better would be necessary for receptive communication to take place:

> Actually, I think there could be a potential problem, because it's not easy now these days for people to communicate, you know. That is, if you invite all of these students [in the study], but we are not friends or able to communicate in a friendly spirit, it would be hard for anyone to really listen to the other…. Therefore, I think for communication to take place, each side needs to be mutually admiring one another. [You had mentioned of an interest in giving a TEDTalk in the future; wouldn't you then be speaking to a group of strangers?] That's why I think even though I really want to do this, I still lack the influence to do so. I would think if various things go well for me in the future—that is, when I have [earned] the right to speak, more ability to influence others, like Jack Ma or other powerful figures—then what I say would have greater impact.

Again, the notion of prestige as the foundation for consideration or communication surfaced in this quotation as in the previous one. Such a notion seems to reflect an underlying assumption about hierarchy in communication: i.e., those who have greater power—albeit not necessarily in the traditional institutional or political sense but in the current meritocratic or socioeconomic sense—have the right to speak or be considered. Yet such hierarchical assumptions may foster a kind of top-down talk that further reinforces power differentials, while inhibiting appreciation or support for conversations among peers or across the power structure. And assumptions as such, of shared background and power hierarchy in communication, seemed at odds with Arielle's own realization that one needs to be open to different viewpoints and information.

It may also be worth noting that Arielle's other criteria for communication—i.e., it can only take place among individuals with shared backgrounds or values—may not be an uncommon perception of how communication works. Granted, Arielle's criteria of communication—power or influence and shared backgrounds or values—may represent a common perception of how communication works. However, as Dewey argued in *Democracy and Education*, actively engaging or initiating communication among people with differences—regardless of one's power

position—is the foundation for establishing shared values and interests rather than the mere result of preexisting commonalities. From Dewey's perspective,[234] critical thinking is important because of its role as the backbone of the communicative efforts that aim to bring people with diverse backgrounds closer together. In other words, critical thinking and communication that broadens individuals' perspectives and connect them, in spite of their power or background differences, are vital for the maintenance of democracy as "associated living."

4. Late-modernity and Influence of the Global Neoliberal System

A third possible reason for Arielle's approach to broader issues like gender inequality at the individual rather than sociopolitical level, may be related to the larger global environment or system that fosters individualism. As prominent sociologists Giddens and Beck have observed, two prominent features of our current era, "late modernity," are globalization and individualization. These two features are two sides of the same coin, for the global economic force undergirding the various phenomena we call "globalization"—e.g., massive mobility, convenient transportation, and rapid communication across the globe—also "disembeds" the individuals from their original locations and traditions. Free on their own now in a competitive world with increasing risks and opportunities, people in today's late-modern era become more individualized as the focus shifts to how one can expand one's abilities and competencies desirable for the global market and necessary for optimizing one's life quality in the global age. Such striving toward success within this global system, also known as the "global neoliberal

[234] See more discussion on Dewey's conception of critical thinking in relation to communication and democracy in the literature review and theoretical framework chapters.

system" for its principle of free-market capitalism and creation of deterritorialized corporations and individuals, seemed to be particularly prominent in Arielle's account.

For example, in explaining her choice to come to the U.S. instead of Britain—another popular destination for Chinese students—a number of elements characteristic of the global age come to the fore, echoing what sociologists like Beck and Giddens called "late modernity" or what Wallerstein called the "global neoliberal system":

> [I chose to study abroad in the U.S.] because I think [higher] education in the U.S. is the best and its level of cultural openness is also excellent. [This is important] because I am rather a feminist—though not as extreme as those here, I still think gender inequality in China is quite severe. I think U.S. is the most open of all here [abroad, among the developed countries]. Whereas in England, I think the government provides great social benefits to its citizens, but people there are not as driven [Chinese original "上进"] as people here [in the U.S.]. [How would you translate "上进" in English?] It would be ambitious—actually, not quite. It would goal-oriented, independent, and able to do whatever one wants without many constrains.

Even though Arielle may not have been aware of the larger economic system that has penetrated almost all aspects of life around the world today, nor of theories that aim to describe and critique this phenomenon, she had grown up within a version of this global system (i.e., in China, which combines it with other cultural and ideological forces of its own). In other words, Arielle was arguably part of what Fong (2012) described as a new generation of Chinese youth "born and raised to rise to the top of the global neoliberal system" (p. 142). Understandably, therefore, the characteristics she was looking for in her preferred new environment abroad—i.e., the global center or developed Western world—would reflect central characteristics espoused by this larger system. These characteristics include expansion of opportunities, better resources, and fewer constrains on personal and professional advancement provided by the destination country on the one hand, and on the other hand, greater development of independence, capabilities, and

ambition within the individual that will lead to higher social status, "flexible citizenship" (in both sociopolitical and cultural senses), and/or self-actualization.

In spite of the attractive advantages that the global neoliberal system seems to offer, there were also challenges, some of which may not be recognized by Arielle in her effort to move to the top of the system. Describing herself as innately "independent, curious, and persistent," Arielle attributed these characteristic traits, along with her numerous opportunities to travel and study in different countries (though for brief periods of time) before college, to her having had a fairly successful and easy time adapting to life and learning in the U.S. In fact, thinking initially that my research was to help Chinese students who were encountering many difficult challenges abroad, Arielle participated in the study with the intention to offer a different perspective and offer suggestions on how the adjustment may actually be fairly smooth. Yet as we delved deeper into her personal triumphs and milestones in the interviews, some of her own deep-seated challenges also began to emerge, arguably reflecting the more trying aspects of the global neoliberal system that sociologists have been analyzing.

One such challenge that was most apparent for Arielle may be called "the self-management challenge," which seemed to encompass a number of interrelated issues: how to manage one's time and responsibilities in a new environment that provides few constrains but also little guidance; how to remain self-disciplined in the face of a vast expansion of personal freedom and attractive options; and how to retain self-motivation in spite of a greater quantity of unforeseen or new setbacks. Arielle discussed this challenge extensively throughout the interviews, as evidenced, for example, in the following quotation:

> You have to depend on yourself for everything here [abroad], so you really have to think for yourself. I think people here, include the teachers, don't really look after or meddle

> with your affairs. So I can really empathize with those [Chinese students abroad] who experience lots of anxieties when it comes to exams or other important matters, feeling inadequately prepared and then becoming increasingly disheartened as a result. But I would think [in this way]: one needs to actively manage one's state of mind or mood—that's an aspect of emotional intelligence. That is, don't let your mood take control over you but do what's necessary to get things done—even if you don't feel like doing it at times. Otherwise, it would be such a waste to spend so much tuition and flunk out. Sometimes it seems to be a matter that can be altered on the spur of the moment—that is, by changing the way you think about it, you might be able to complete the necessary tasks and things may become better and better.

In explaining how she has become "more utilitarian" (her own expression in English) during her time abroad), Arielle mentions a few salient characteristics of the new environment, such as greater personal freedom and responsibility, suggesting perhaps that the change of environment has contributed or cemented to a more individualistic and practical development within her mindset. Her reflection then quickly or abruptly shifts to her empathy for fellow Chinese students who might not have adjusted as quickly or well to the drastic structural changes in the new environment and were experiencing a downward spiral.

It may be worth noting that for Chinese students who have typically grown up in a cloistered environment at home and a tightly structured system at school, the amount of freedom abroad can be overwhelming, especially when it is given without guidance or support. This is because these students may lack both prior experience in living with so much freedom and prior acquisition of skills and knowledge on how to live with the challenges, also suddenly thrust upon them, of making independent decisions and taking individual responsibility. Such a lack of knowledge or experience with managing one's time, energy, and opportunities in a "free" or DIY environment may trigger a cycle of inadequate preparation for actual responsibilities, growing anxiety about one's ability to both manage the tasks and oneself, and a disheartened feeling of failure that they may not have quite experienced before.

Although Arielle seems to perceive herself as being successful in managing her responsibilities and wellbeing or different from students who experience this downward spiral, she also appears to be particularly cognizant of the challenge and its potential ramifications. Describing herself as having a "strong survival instinct" in the face of challenges or setbacks, Arielle's solution to this kind of challenge is to actively fight it off by vigilantly managing her state of mind and sense of wellbeing and by reminding herself of her practical responsibilities and filial obligation. Ironically, given her account, it seems that the financial burden or heavy price tag on the education abroad for many Chinese students (coming from the middle class in China) may act as a positive impetus, propelling them to work extra hard and make the most of this significant investment or sacrifice that their parents have made to support them.

While there may be some unique aspects to this transitioning experience of Chinese students abroad (e.g. stronger familial bond that may be a source of support or hindrance to their transitioning), it seems to echo elements in the larger processes of change that scholars have been observing of many societies or nations in the late 20th and early 21st centuries, as these entities evolve from an earlier state of traditional order or modernity into the present era of "late modernity." Ulrich Beck, in his work on *individualization*,[235] for example, argued that while the structural elements of late modernity—e.g., the rapid expansion of knowledge production, technological advancement, and convenient transportation or mobility—increase individual freedom and opportunities, these late modern forces also disembed individuals from both the constrains and protections that are typically afforded by the traditional orders or institutions,

[235] More detailed discussion of the sociological analyses of the transitions between different modes of modernity and how their structures impact the lives of individuals can be found in the theoretical framework chapter.

such as a tight-knit familial system. Free to decide, or "condemned to choose" for oneself on issues big and small, and often with little time but plenty of contending authorities, expertise, and knowledge claims, individuals in the fast changing era of late modernity may, in fact, be exposed to greater personal risks and anxieties.

In other words, while actual academic failures or psychological breakdowns among Chinese students abroad may constitute a relatively small percentage of the population (at least within this study), the broadly defined "self-management" challenge they experience may not be mere personal issues affecting the few. Rather, seen from a sociological lens, the challenge with managing one's decisions, responsibilities, and wellbeing seems to be prominent, collective issue in late modernity—one that is also inevitable, given the structural forces that have largely contributed to its presence. In Arielle's case, even though she may have a limited awareness of the underlying macro-level forces that were shaping such experiences and have a tendency to adopt an individual-centered lens in her interpretations, she felt empathic toward fellow Chinese students who experienced the deep end of this plight and had extended help to some within her broadly-defined friendship circle.

As a response to my follow-up questions on what she said in the first segment about self-management, Arielle also mentions in the following quotation how she actually sought external help to cope with such challenges:

> [How do you self-manage or regulate?] Basically, when I feel very down sometimes, I would reach out to people who can inspire you and ask them for suggestions. I remember, for example, I was feeling very dejected the day before yesterday, over a rather insignificant matter—I handed in a homework assignment late, even though I knew I could have completed it on time. So I reached out to a friend who often has good ideas and insights….When I told her that, in spite of trying, I could not find the motivation to complete the assignment, she responded: 'it's because your realization is not enlightened enough [laughing].' She also said that how high you can reach correlates with how much

> suffering you are willing to endure. I completely agree with this statement now as I did then, but I was very dispirited at that time. So I said, what if I die from too much of such sufferings? She said [laughing again]: 'that would be wonderful; it would be at least better than living a dreary life.'[236] I was just so impressed by how hard working she was. Even though I did not completely agree with everything she said, I really felt inspired at the time by the extent she was willing to put in the effort.

By contrast to the earlier quotation where Arielle highlights internal resources or reasonings that seem to have sufficiently helped her deal with the challenge of self-management, her later discussion here seems to suggest that this problem may have been more difficult than what her initial description conveyed. In fact, in an even later part of her account, Arielle mentions that this recurring failure or challenge in managing herself—i.e., to complete what is within her responsibility and capacity to do—has been "the most disheartening thing" for her to face. In response to this persistent problem, Arielle actively leaned on external sources —i.e., primarily a carefully selected group of friends who share similar socio-economic and educational backgrounds, work ethics, as well as hopeful and ambitious outlooks—to help her stay motivated and disciplined for hard work.

As Arielle actively sought advice and support from friends who are poised for success, it is apparent that she was also incorporating their suggestions about the kind of mentality and preparation that would ensure her success and wellbeing abroad. For example, from the friend mentioned in the above quotation, Arielle was reminded to reach high; such ambition helped her to give a new meaning and impetus for completing her difficult and perhaps mundane daily assignments. And Arielle seems to know quite well, as the small yet upsetting homework incident

[236] The original Chinese expression used by Arielle was "生不如死," and its literal meaning can be translated as "staying alive or living is not as good as death." This common Chinese expression is often used not so much to suggest that one should, literally, choose death over life, but to emphasize the grave extent of one's suffering in life or in being alive at the moment.

for her may suggest, that such ambition or realization of this higher, long-term goal—beyond the purview of an academic requirement or evaluative criteria—depends largely on her being consistently self-disciplined and self-motivated. And as sociologists have observed, these personal qualities of self-discipline and self-motivations constitute some of the essential characteristics of individuals in the late modern era.

Moreover, in another example mentioned elsewhere in an interview, that from a mentor-friend who has "made it big in the Silicon Valley," Arielle learned the value of taking time to explore and expand one's various interests or passions—adopting a view that fosters individuality and individual expression and that is decidedly different from a more traditional Chinese perspective that emphasizes a more immediate kind of practicality and efficiency. From this successful friend's experience, Arielle believed that even if one were to end up not pursuing a particular or "impractical" interest or passion as a career, the commitment and act of exploring one's interests to the extent that it satisfies one's curiosity and passion can help one find peace and satisfaction with the work one eventually chooses. It would also be unsurprising that Arielle's extremely self-affirmational or positive outlooks—e.g., her perception of mistakes and setbacks as valuable learning experiences or pathways rather than failures or even character issues (which would be the more typical interpretation often practiced in China)—has also been shaped, in part, by her extensive exposure to trendy ideas through these friends or mentors abroad and via her favorite venues like the TED Talks.

It may be argued, therefore, that in striving to overcome her own challenge with self-management—one that seems to manifest more severely in other students but may in fact be a condition of late modernity abroad—Arielle acquired mentalities and dispositions that are

essential for survival and thriving within the current global system. While such mentalities—e.g., working hard, strengthening one's professional/academic and emotional competencies, and maximizing one's ambition and capabilities—may be largely positive in themselves, there may be negative byproducts. One such consequence of this achievement-oriented mentality may be a lack of space for one to pause, reflect, and ask some critical questions: *Is this all there is to it—a perpetual pattern of hard work and rewards that often manifest in materialistic terms? Is this model of constant upgrades and acquisitions espoused by the neoliberal global system best for myself and the world ? Where are we going anyway and for what purpose?*

In a way, these questions may be looming just below the surface of Arielle's own emotions, as evidenced in the following quotation:

> I guess one also has to be able to live with loneliness [i.e., in addition to reaching out to those who are inspirational and trustworthy]. Actually, I would feel very bored sometimes, but then I would also think boredom means that I am safe and nothing is going wrong—that's actually very good. [When did you start to experience this boredom?] My sense of boredom started here. I've always wanted to explore the world, and when I did arrive here, it feels as if what can be explored of this world has been exhausted; so I began to feel bored. Now I consider this feeling of boredom may not necessarily be a bad thing, because it means that I have done what I've set out to do, without unexpected problems or accidents. Yet, I would still think that I need to continue challenging myself even more.

Although such feelings of boredom and loneliness seem to have surfaced only "sometimes," according to Arielle, they may be pointing to a deeper existential challenge—about the meaning of life, the nature of happiness, and the larger purpose of one's pursuits—that other participants have also encountered and which some have begun to explore explicitly. For Arielle, this bigger but more ambiguous challenge may not be as apparent or urgent as the more immediate self-management challenge. And perhaps in trying to interpret or rationalize her sense of boredom as an indication of normalcy, as is evident in the quotation, Arielle may not even recognize this

existential challenge, as it may continue to manifest as emotions of boredom or loneliness, or as she continues to focus on challenging herself with the next pursuit, curiosity, or opportunity—of which the global neoliberal system seems to have much to offer.

Yet these two challenges may be related: the self-management challenge could be a result of the existential challenge, and the exploration or solution to the latter issue—admittedly, a potentially time-consuming detour—may generate a more stable and intrinsic motivation for the self-management task. It seems that among the study participants who have explored the larger, existential questions (e.g., most of the students in Group I and also some in Group II), issues of boredom and self-management challenges were not as salient. In Arielle's case, however, these challenges appeared to be somewhat separate, as the larger existential challenge may remain submerged by the seemingly successful solutions Arielle has found for the other challenge. That is, the uplifting elements that Arielle was able to draw from internal habits and external inspirations—e.g., hard-working ethic and the ambition to achieve more—may suffice, at least for the time being, to keep her motivated and disciplined.

Perhaps for a long time to come, Arielle's interest may also remain focused on building success and establishing herself along "the right path." Yet interestingly, while her expression "the right path" may suggest binary values—e.g. right vs. wrong—and her selective advice-seeking behaviors seem to suggest a certain "right" set of values that promise success, her actual definition or description of it shows more fluidity and nuance. By "the right path," she refers to a state of being or a self-development process whereby she may still undergo changes but she will "not feel lost or easily defeated by difficulties, because of [her] understanding about [her]self and the world" and because of "the abilities [she has] developed through the difficult

challenges." Her explicit definition actually echoes Tim's description of finding "the right path" through critical thinking. Both versions express the hope for personal maturation or growth that is grounded in knowledge of the self, the world, and life experiences. And such knowledge may be further developed, as we have seen perhaps more saliently in other cases (e.g., Tim and others in Group I), by applying critical thinking more extensively to issues in these intrapersonal, interpersonal, and sociopolitical areas.

Given the seemingly conflicting directions within Arielle's thinking and some of her strong dispositions toward critical thinking or reflection, it seems possible that at some point in the future, when Arielle has gained more life experiences and when the global world that can be pursued or explored has become more exhausted for her, she may continue to revise, if not reconsider, her understanding of "the right path." She may find that within her existing version, there is room for strengthening it further through thinking more broadly and critically about the larger existential and sociopolitical questions that have already begun to manifest with her emotional life.

5. Conclusion

The above analysis demonstrated that while Cindy and Arielle differed in personal and interpersonal characteristics (e.g., temperate vs. emotional, largely dependent vs. independent of familial involvement), both of them exhibited substantial self-knowledge and critical thinking dispositions and skills. While their application of critical thinking in the academic and personal domains was apparent, it was much less evident in the sociopolitical domain. The analysis then further explored the possible reasons for Cindy and Arielle's uneven practice of critical thinking

across the domains, highlighting the larger socioeconomic force of globalization as a significant likely cause. That is, in spite of the rapid exchange of information and exposure to varied worldviews and practices via the expansions of convenient technology and transportation in the global age—conditions that could increase shared experiences, interests, and concerns for the collective or the sociopolitical—the sudden increase in accesses to opportunities, resources, and competitions globally may have also intensified individuals' drive or focus on themselves (e.g., exploration and expansion of one's abilities, interests, and socioeconomic potentials). Such focus could propel critical thinking's ready application to the personal and academic domains, while reducing the inclination of some to engage with less immediate but potentially more precarious social or sociopolitical issues.

Granted, the effect of globalization or the neoliberal global system is pervasive and arguably discernable in the experiences of every participant in this study. It is being more extensively explored in these two cases, particularly via Arielle's, because of its salient effect on their critical thinking application, or the lack thereof, in the sociopolitical domain. The example discussed above is the way in which Cindy and Arielle refrained from a more in-depth exploration into issues of gender inequality that were, in fact, deeply personal and problematic in their experiences.

Granted also that Cindy and Arielle's natural interests—e.g., in STEMS rather than in the social sciences or humanities—may have also played a role in their relatively limited applications of critical thinking. In addition, drawing upon Dio's insight about the different level of luck or compatibility between each individual's innate orientation or characteristics and the larger social norms that regulate individual's experiences, it may be further argued that since Cindy and

Arielle's pursuits and preferences generally align with dominant norms or expectations of their environment, there was indeed a lack of incentive to problematize the larger sociopolitical issues in their experiences.

Yet from an educational point of view—one that situates between the micro/individual and the macro/societal, as Dewey asserted—how to channel students' critical thinking across the domains may remain important, particularly in the global age. What Cindy and Arielle's cases seem to demonstrate is that strong critical thinking exhibited in one domain may not be readily transferable or willingly transferred to another. For critical thinking to be prevalently practiced across all domains, sufficient guidance or examples may need to be supplied via education, along with favorable socioeconomic and political conditions. In other words, insofar as education, particularly higher education, takes its purported social/sociopolitical responsibility seriously, the ideal practice of critical thinking across domains may need to be more actively and thoughtfully cultivated through concrete pedagogical, curricular, and extracurricular designs.

IV. Group II Subgroup 3

Subgroup 3 has two students, Antonia and Hanna, whose conception and practice of critical thinking appeared uneven across domains—i.e., strong in the personal domain yet weaker in the academic domain. Due to length and time considerations, I will present only Antonia's case here. Data collected from Hanna are analyzed in the same way as other cases, and pertinent quotations from her will be presented in the general pattern analysis chapter.

Antonia's propensity for hands-on/experiential knowledge rather than conceptual learning may have contributed to the varied levels of strength vis-à-vis critical thinking abilities in different domains. Moreover, the ways in which she guided herself through challenges, particularly earlier academic and social setbacks in China, demonstrate not only a natural ability to think critically but also an outstanding strength of the self that probably undergirded such criticality.

The following analysis consists of four sections: (1) Antonia's critical thinking in the personal domain; (2) the strength of her criticality in connection to selfhood and the non-rational/moral dimension; (3) her weaker grasp and practice of critical thinking in the academic domain; (4) a brief conclusion highlighting the difference between critical thinking across domains and its pedagogical significance for the teaching of critical thinking.

1. Critical Thinking in the Personal Domain

Unlike students in Group I and the majority of students in subgroups of Group II who typically excelled in the Chinese education system, Antonia considered herself an academically average and socially marginalized student throughout her education in China. Yet in spite of having experienced withdrawal—similar to that described by Becky and Erick in Group III— from intense academic pressure, escaping from unfavorable circumstances was not her primary approach to problem-solving:

> In China if you don't do well on tests, you'd be treated disparagingly by everyone else, so of course, there were academic pressures. But perhaps I am the kind that, for example, if the pressure is too high, I would simply stop working and do something else instead.

Rather, Antonia's default mode was to observe and reflect on what was difficult in her experiences, believing that she could somehow "transform the negative into something positive"—e.g., better knowledge or understanding of herself and the world around her.

What Antonia observed was, for instance, that many lower-performing students would internalize the harsh attitude toward them from the environment and formulate a perception of themselves as unworthy—something that she would decidedly resist:

> I felt students who didn't do well academically would be looked down at by others. What I found even more strange is that these students in my class would also sneer at themselves, saying disparaging things like 'don't bother to take the college entrance exam, don't even think that [you] would have a chance.' I just found it impossible to have a conversation with people who think in this way, because I felt—as I was already beginning to value myself more—I've always felt that what was happening was not right. I would think in this way: it's not right to list everyone's score on a chart and post it for all to see, because people would invariably say things that are very hurtful [to those who didn't do well] without even realizing it.

Although as an academically average student Antonia also suffered from a lack of confidence and felt "rather lost and degenerated" in such an environment, the quotation above demonstrates that she had a keen ability to observe and think independently about her experience and surrounding. Additionally, she also had a self-validating or protective impulse that might have contributed to her greater sensitivity to her environment and prompted a more thoughtful and questioning response to the phenomena she witnessed. These inner qualities (cognitive and intrapersonal) together seem to have helped protect her from internalizing the negativities that she encountered, enabling her to judge for herself that she is innately valuable as a person and thus deserves respect.

Describing herself as having an innate disposition to think thoroughly or "dig in, dig deeper," Antonia often took her thinking to a higher level of analysis and understanding,

uncovering larger issues that may be reflected through her experiences and observations. In the following quotation, for example, she identifies and problematizes the binary way in which people around her categorized "high-performing" vs. "low-performing" students:

> Parents would often say, 'don't hang out with students with bad grades or you would be under bad influences.' I think this is bias, because people just assume that those who study well would necessary be good in every other way. If such students cheat, you wouldn't believe that it's possible for them to do such a thing. I think it's a social phenomenon, perhaps people in general, perhaps not only in China—I don't know if that's the case, have this unconscious bias that academically excellent students just can't do anything wrong. But students without good grades don't necessary do bad things [as it is often assumed]; they are just not that good academically. I think being genuine is more important.

Even though not yet framing her thoughts in explicit technical terms, Antonia's critique above indicates her awareness of the fallacious or totalizing thinking undergirding the negative social attitude toward students who did not excel in a limited yet competitive education system. Instead, she argued within that a finer discernment needs to be made about these students, so that they can be better understood and treated with respect. As Antonia recounted later in the interview, this critical understanding of her surrounding and her own experience would prompt her to act firmly and differently toward others who might have also felt "abandoned by the system." For example, instead of following the norm which typically shunned associations with disadvantaged students, she befriended a student with disabilities in spite of social pressure and isolation, explaining that "I just thought that she can also have friends, just like everyone else."

In other words, Antonia showed a number of natural dispositions essential to a critical thinker, such as sensitivity to problems, propensity to question and think thoroughly, and commitment to uncover the reasons undergirding the events or appearances she observed. In addition, she also demonstrated a rare ability to utilized her difficult experiences of marginality

and transform them to something positive or empowering[237]—i.e., better knowledge of the larger system that had confined her and many others who were, as Dio from Group I described, "not so lucky." And with this critical knowledge or awareness of the problems within her surrounding, Antonia seemed to have had greater confidence and freedom to authorize her own values, allowing her also to stand up for herself and others, albeit often in silent resistance or action.

2. Selfhood & Non-rational Dimension

Such mental and moral strengths suggest a strong sense of self and criticality. In fact, it may be argued that the above quotations from Antonia indicate a complementary relationship between her selfhood and critical thinking. That is, as Antonia had an affirmational/self-validating attitude toward herself, it might have directed her to think in a certain way—i.e., more critically about her experiences and surroundings. Reciprocally, the observation and knowledge she gained through critical thinking might have led to her skepticism toward established practices on the one hand and the belief in her own values and understanding on the other.

It is also worth noting that like Group I students, Antonia demonstrated a strong non-rational dimension that seems to have contributed to the strength of her selfhood and critical thinking. Recall the non-rational dimension expressed by students in Group I: e.g., "inner voice," "feeling," "intuition," and "religious faith." While Antonia also described herself as "an intuitive person," her non-rational dimension seems to have manifested most strongly as a moral

[237] Without perhaps knowing about it, Antonia's transformation of disempowering experience to empowering knowledge echoed what feminist standpoint theorists have asserted about the possible epistemic values or "stronger objectivity" of those situated at the margin or disadvantaged position of a society or group.

sensibility or feeling of empathy that might be closest to Audrey's in Group I. In the few instances Antonia recounted of her childhood where the logical impulse might have been to respond in kind to the hurt she had experienced from other children—e.g., insult for insult—she would not give into such impulses. Her reasoning was that she would not wish to repeat the same practices or behaviors that had upset her, "so that the same thing won't happen to others, making others suffer as well." Instead, she would transform the difficult experience or emotion as an impetus to "think more deeply about the event" and "the logic behind it." In other words, Antonia's empathy for others and moral intuition—i.e., to act in a way that was beyond her immediate personal interest—prompted her to think more carefully of her experiences and surroundings. Through this thinking process directed by a strong non-rational or intuitive moral dimension, what she had gained may consist not only greater knowledge about the world but also a more resilient and committed sense of who she was and what she valued.

Once Antonia arrived in the U.S. for college, the strength of her criticality and selfhood began to manifest and grow in other ways. The following quotation, for example, shows how she approached a common challenge faced by many transnational students—the question about future career trajectory:

> [HX: Why did you participate in so many school events or what were you , as you mentioned, 'confused about'?] For example what it is that I want to do in the future, given my [major]; what career path might be suitable for me; and which arena might enable me to uncover my unique strengths. These questions cannot be solved by knowledge learned from classrooms; they can only be addressed by conversing with different kinds of people. Of course, there're also internships, accumulation of practical experiences, and continuous strengthening of your skill set. I haven't done any internship yet but will. I have talked to school alumni through the alumni association, and I have also used the career center.

Antonia's decision-making process above demonstrates a number of essential critical thinking elements: e.g., clear identification of the topic or problem and its sub-components, thorough gathering of warranted resources or evidence, and independent formulation of a position of one's own. Her approach to the decisional challenge also indicates several additional critical thinking elements that may be particular to its application in the personal domain: e.g., discernment of different types of knowledge being involved in decision-making (e.g., experiential, interpersonal vs. conceptual, theoretical), maximization of potential human resources available to her, and more involved experiential learning and hands-on exploration (i.e., requiring not only the cognitive dimension as typically emphasized in academic or conceptual learning but also the interpersonal and intrapersonal dimensions).

In addition, a shift can also be seen from the above quotation in the way Antonia applied critical thinking in different social environments. Whereas in China her criticality was largely channeled to generate social observation and critiques of a system that provided little opportunity or support for students like herself, in the U.S., she was more focused on herself, utilizing her criticality more on strategizing a hopeful future that she looked forward to build. Like Becky in Group III, who also had a strong sense of the self and agency that was repressed in a narrowly-defined educational system in China, Antonia thrived in the new environment that was more supportive of diversity and differences. As she enjoyed greater freedom to explore her interests and learned to "value myself" abroad, she became more confident and active in learning from others and from her study, recognizing also that "the more you know, the more you realize how much you still don't know." In other words, a different kind of complementary development of the selfhood and critical thinking can be seen in Antonia's experience abroad—i.e., one that is

more focused on strategic problem-solving and expanding one's capabilities instead of earlier critical resistance and self-preservation. Yet regardless of her environment in China or U.S., the strength of Antonia's selfhood and innate capacity for critical thinking in the personal domain appeared to be quite outstanding.

3. Weaker Critical Thinking in the Academic Domain

In comparison, Antonia's demonstration of critical thinking in the academic domain appeared to be a bit weaker. While she noticed varied manifestations of critical thinking across disciplines, her description of the differences was vague, as indicated in the quotation below:

> For disciplines that are more practical, the kind of critical thinking manifested there is different from those in the humanities and social sciences. These disciplines, such as statistics and economics that focus more on real-world problem solving, exhibit a kind of critical thinking different from psychology and communication. Also different is critical thinking in a discipline like computer science, perhaps because of the logic behind programming.

Whereas Antonia provided voluntarily ample discussions of her thinking processes in the personal domain, she did not do so on her application of critical thinking in the academic domain. Her sweeping reflection above also contrasts with the more extensive discussions of this topic by students with stronger exhibition of critical thinking in the academic domain: e.g., Claire in Group I or Nathan in Group II, among others in these groups.

Granted, the lack of explication of how she thought critically on academic subjects may in part reflect the semi-structured nature of the interview processes: had I (the interviewer) pressed Antonia more for an explicit discussion of her thoughts in the above quotation, she might have provided further details of her critical thinking applications in the academic domain. Yet,

such information may also be gathered indirectly through the few reflections she did mention about her study or herself as a learner:

> I think everyone's focus is different. For example, some can gain a lot from their studies, but for me—take my psych. course as an example— I feel the content provided by instructor are debates from 10, 50, or even 100 years ago, but nothing current. I also found what the courses offer are fairly general rather than practical skills, yet I am more interested in practices. If I am to really remember a piece of knowledge or if I think it is useful, I must find ways to put it into practice—this is my learning style.

The above quotation suggests that as a learner, Antonia was more interested in operational knowledge that she can use for problem-solving in practice than conceptual learning or theoretical debates characteristic of academic life at a research university. While this hands-on, experiential learning style seems to have made her a quick learner—adaptive and resourceful—in the personal and professional domains, it may be a disadvantage for her in the academic domain. Her comparatively low GPA[238] (around 3.0, in comparison to the 3.6 average of students in this study) may also be seen as a partial indication of her different learning style and relatively weaker preparation, as she described in the interviews, of knowledge and skills—including any form of critical thinking that may have been fostered—in the academic domain.

A similar reflection about her particular interest and approach in the academic domain may be seen in her following response to this item in the critical thinking list[239]: "Seek as much

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[238] See the next chapter for a more nuanced discussion on the relationship between critical thinking and GPA. Also note while most transfer students seem to calculate their GPA by accounting their GPA from CC as well, Antonia was rather stringent with the way she calculate her GPA by the way that graduate school would calculate transfer students' GPA—by their last two years at the 4-year institution only. This may indicate a number of things about Antonia—her high standard for herself, her self-acceptance (rather than covering up to elevate herself), her courage to face the reality and herself, her being well-informed about the future steps she might be interested in taking… I got a sense, though not confirmed, that other students did not make such stringent GPA calculation. I can/should ask (1) Registrar about how the GPA is calculated on their end, and (2) how GPA is calculated at graduate school.

[239] As explained elsewhere, such as the method chapter, this list of critical thinking dispositions and abilities was adapted from the work of Ennis, who has been a key figure or theorists in the critical thinking movement in education. Participants were given the list as a preliminary self-evaluation during the last part of the 2nd interview.

precision as the situation requires & try to 'get it right' to the extent possible or feasible." It was one of the few items on the list that Antonia claimed to have used less of (rather than frequently), and below is her explanation:

> It's because I don't think there's right or wrong. That is, no matter how precise you try to be—how should I say this—I don't have a such strong sense of trying to 'get it right'; [rather,] I want to hear different perspectives. As a psychology professor said on the first day of the class, there's no right or wrong but only that when more evidence supporting one side, that claim [or side] is right for the present. But it's possible that a few years later, when new research uncovers more evidence that supports the other claim, that claim may be more likely to be right. So I feel that there's no absolute right or wrong—what might be right now may not be right in the future. [HX: Yet do you think without the idea 'try to get it right,' it may lead to a lack of actual trying to 'get it right'—e.g., on the quality of one's research design and objectivity?] I think it can—this is actually what I think is my weakness: I am not so aggressive but tend to focus on understanding. My debating [or argumentative] skill is relatively weak, as it often takes me a long time to think clearly, though I would take my time to think things through. So it's both a strength and a weakness.

While it is not clear whether Antonia's summary of her professor's viewpoint was indeed an accurate representation or a mere reflection of what she had understood of the perspective, epistemic relativism is probably not the final position for most scientists or critical thinking theorists. In fact, the spirit of scientific inquiry and critical thinking seems to overlap in that they both aim to move beyond relativism or move forward in spite of uncertainty. That is, even if absolute right or wrong is not possible, there is always better knowledge claims or more defensible positions to be formulated based on available or new evidence. This drive for epistemic precision characteristic of academic knowledge is arguably conveyed in the modifiers of the statement that may have been overlooked by Antonia—i.e., "as much as the situation requires" and "to the extent possible or feasible." These modifying phrases communicate not only the recognition of perpetual change or uncertainty in knowledge construction but also the commitment to do so toward greater understanding of the truth. As Antonia seems to be aware

that without this impetus to "try to get it right" to the extent possible, it could be a potential "weakness," affecting her performance and perhaps effort to engage in an academic setting. By extension, it may also be inferred that without the substantial interest in conceptual details, her critical thinking in the academic domain, which depends on the knowledge of such details, may have indeed been less robust.

It may also be worth noting that in the later part of her response or defense, Antonia makes a contrast between preferring to "hear different perspectives" and "focus on understanding" on the one hand, and trying to "get it right" on the other hand—suggesting that they may be conflicting aims or priorities. This highlighted tension between two arguably different directions of critical thinking seems to echo a central debate among theorists on the purpose of critical thinking—i.e., for better knowledge or argumentative claims vs. for better understanding that could enhance human connections and engaged co-existence (see more details in the literature review chapter). Yet as Claire (a Group I student) asserted in the in-depth case analysis chapter, critical thinking should entail not only hearing different perspectives but also evaluating them, along with one's own, for the purpose of improving one's belief system or understanding of a particular issue. In other words, the points about *understanding via different perspectives* and *trying to get it right* may not necessarily be conflicting but may be connected as two indispensable steps or aspects of the knowledge/comprehension-seeking process. That is, the quality of one's understanding about the other or a phenomenon depends on the effort one puts in to get as much right/complete as possible or necessary; one concrete expression of this effort is a thorough gathering of available information and perspectives on the object of inquiry.

At the same time, the distinction suggested by Antonia may still be valuable in that it sheds light on possible issues regarding critical thinking practices within the academic domain and the transferability of it to the personal domain. Perceiving the effort of "trying to get it right" to mean aggressively arguing for one's position or winning debates, Antonia's perception in fact parallels some of the critiques that have been raised by feminist and postmodern theorists of education about the kind of critical thinking that had been promoted, and may still be prevalently practiced, in academia. As discussed in the literature review chapter, the feminist and postmodern critique is that the dominant approach to critical thinking has given too much focus on logic and the construction of best arguments and not enough consideration for the larger context and moral purpose of "making the world demonstrably better."

A similar critique of this logic/argument-driven form of critical thinking in academia may also be found among other participants in this study: e.g., in Dio and Tim's questioning of the very concept of "evidence" itself and its largely unquestioned practice as a reliable way for justifying one's claim, or in Audrey's assertion that complex problem-solving in the real world calls for a more inclusive kind of thinking that takes into account feeling and empathy for individuals who may be affected by the problems and their corresponding solutions. In other words, Antonia's emphasis on "understanding" rather than "trying to get it right," along with these other critiques from theorists and students, seems to suggest that different compositions or extent of the rational and non-rational dimensions may be appropriate for the application of critical thinking in different domains. That is, while the use of critical thinking in the academic domain may entail a more singular pursuit of rationality and a theory-driven approach for knowledge problematization and construction, its manifestation in the domain of everyday life

may necessitate a more complex utilization of the rational balanced with the non-rational for effective understanding, communication, and problem-solving.

4. Conclusion

In short, as an experiential learner, Antonia might have conflated in practice the kind of critical thinking she developed naturally in the personal domain for the kind she was required to demonstrate in the academic domain. The potential disadvantage and mismatch of this crossover or transfer may raise useful questions for critical thinking theorists about the often assumed transferability of critical thinking across domains. That is, in spite of ample similarities among critical thinking practices in different domains, the orientation or goal of each domain is arguably different and, hence, the highlighted components of critical thinking needed for each domain. For example, while the more collective knowledge creation orientation of the academic domain calls for logical and warranted argument constructions according to an evaluative or disciplinary standard, the more individualized human connectivity orientation of the personal domain may require a more flexible and accepting approach to the various standards that others practice. In other words, some elements of critical thinking emphasized in one domain may not be as easily applicable or transferable to another; therefore, the teaching of critical thinking across domains may need to be more explicit and nuanced rather than general and presumed.

As we shall see in other subgroups of Group II, just as Antonia encountered limitations in transferring her strong critical thinking abilities in the domain of everyday life to academic domain, the reverse was true for some other students who demonstrated strong critical thinking in the academic domain but less so in the personal or sociopolitical domain. The implication of

this limited transferability across domains for the conceptualization and pedagogy of critical thinking in higher education may be significant and will be further explored in the conclusion chapter.

V. Group II Subgroup 4

Subgroup 4 consists of two students, Faye and Hill, who, like the other Group II students, demonstrated substantial understanding and practice of critical thinking in some domains but not in others. While Faye and Hill's conceptions and practices of critical thinking also varied—with Hill's being more robust—both of their applications of critical thinking were conspicuously weaker in the personal domain, especially in important decision-making that entailed processing setbacks they experienced.

Delving a bit deeper, it appeared that the domain-specific lapse in their otherwise well-integrated practice of critical thinking may be linked to an extraordinary pressure to compete and succeed that they had experienced at a young age. Without a proper examination or recognition of such pressure, they seemed to have internalized a certain irrationality in the way they pursued their passions or goals—manifested as "stubbornness" in Faye's case or "impatience" in Hill's case that were rooted in their shared fear for failure. In other words, the areas in which their applications of critical thinking seemed to be weakest coincided with personal experiences that had been traumatic or damaging to their development.

The close connection between critical thinking and selfhood, which has been a recurring theme throughout the analysis of previous cases, also emerges in this subgroup of students,

albeit with additional details and insights that differ from those shown in the other groups and subgroups. For example, in comparison to subgroup 3 students who have largely overcome the external pressures imposed on them by family or society, Faye and Hill were still struggling with identifying such pressures and understanding how these internalized pressures might be shaping their responses and decision-making. Granted, both Faye and Hill tried in their own ways to cope with the stress, such as emotionally distancing themselves from their parents who were the most immediate source of such pressures (most prominently in Faye's case) or getting professional psychotherapy help (in Hill's case). Yet the internalized pressure and the hidden other-orientation[240] that invariably shaped both of these students remained an unresolved aspect of their selfhood, contributing to intrapersonal/decisional issues where their respective applications of critical thinking were most absent—and arguably, most needed. In other words, if the stories of subgroup 3 students demonstrated a connection between selfhood and critical thinking in which the latter strengthens the former, the accounts of subgroup 4 students seemed to suggest the reverse side of the same coin. That is, negatively or traumatically impacted aspects of the self can function as an irrational force that inhibits application of critical thinking in the domain of everyday life and decision-making.

Due to limited length and time considerations, I will present only Faye's case here. Data collected from Hill are analyzed in the same way as other cases, and pertinent quotations from him will be presented in the two later chapters on general pattern analysis and conclusion.

[240] Reminder note: the term "other-orientation" first appeared in the analysis of Jiayi's case and later in Group III analysis. It refers to a sense of self that is other-oriented, as oppose to self-defined or self-affirming. An other-oriented person often defines his or her decisions, actions, and self-perception by what others think, do, or respond to oneself.

The following analysis on Faye is divided into three sections: First, Faye's conception and application of critical thinking, which was demonstrably stronger in the academic and social/socio-political domains but weaker in the intrapersonal and interpersonal domain of everyday life. Second, Faye's selfhood that exhibited both the apparent self-affirming and the hidden other-oriented characteristics, functioning respectively as non-rational and irrational forces that seemed to have shaped her decisions, experiences, and the way she practiced or not critical thinking in certain areas. Third, the conclusion section explores the cross-cultural dimension of Faye's case, highlighting the role critical thinking can play in helping students develop a more examined and integrated sense of self by which they can better navigate the competing demands they face in a bi-cultural or multi-cultural world.

1. Conception and Application of Critical Thinking

Faye's understanding of critical thinking seems to have derived largely from her experiences in the academic domain, which captures some of its essential aspects but misses others. In a similar manner, her application of critical thinking also manifests unevenly across the domains, with stronger demonstrations in the academic and even sociopolitical domains and weaker demonstrations in the intrapersonal domain—particularly in terms of processing setbacks that could impact her decision-making in an important way.

The primary description of critical thinking by Faye was "thinking outside of the box," as demonstrated in the following quotation:

> I think critical thinking is just thinking outside of the box, because everything has more things to it. Like, basically, whether it's a physics problem or textual analysis, I think it's all the same, because you have to think more deeply into the problem or text.

Using the phrase "thinking outside of the box" in an all-inclusive way—which differed from others and from its more common association with creative rather than critical thinking[241]—what Faye seems to be conveying is an understanding of critical thinking as a deeper level of mental activity that explores matters beyond the surface level or "the box" of what is given or apparent.

More specifically, critical thinking as such in the humanities would mean "to look past the surface value they give you [e.g. the plot or description] and dwell deeper into the meaning of the text." One can do so, according to Faye, by analyzing the feelings or interiority of the characters and considering the intensions and techniques an author or a filmmaker used in developing a work of art. By thinking and analyzing beyond the surface level, Faye said that she "just noticed things more"—i.e., not only the *what* is being created or presented, but also the *how* and perhaps even the *why*. Such expanded ability to see or understand more via critical

[241] For example, Claire also used this phrase, in a number of different and overlapping ways: (1) to describe thinking from multiple perspectives or outside of one's own, and (2) a kind of thinking that is novel, unusual, or outside of the common framework or perspective of perceiving things (see more details in the In-depth Case Analysis Chapter). Claire's interpretation of the phrase seems to align more closely with the definitional meaning than Faye's, which states: **"**to explore ideas that are creative and unusual and that are not limited or controlled by rules or tradition" (Merriam-Webster). Moreover, a professor and native English-speaker, who read an early draft of Claire's case analysis, once commented the following in response to Claire's first way of using the phrase: "To me, 'thinking outside the box' means escaping the shared framework or 'received knowledge' about something, and coming up with an idea that surprises everybody in your setting. Simply comparing different arguments [or perspectives] would probably not lead to it. It's about creativity rather than critical thinking." The professor's understanding of the phrase seems to align even closer to the dictionary definition, both suggesting that the phrase refers to creative thinking rather than critical thinking—though a case can be or has been made by some scholars on the close connection between critical thinking and creative thinking.

Yet, a number of other participants (non-native English speakers) in this study have also mentioned the phrase as a description of critical thinking, suggesting that the connection or conflation between "thinking outside of the box" and "critical thinking" may be quite common, at least among these students who are non-native English speakers and who are exposed to the concept relatively late in their education. If "thinking outside of the box" is indeed different from "critical thinking" by definition, the prevalent conflation among the participants may be indicative of a lack of explicit instruction and consistent practice of critical thinking in larger educational environment in the U.S., for these students' accounts showed that they often had to figure out what it means to think critically by themselves and it was thus natural perhaps to link these seemingly connected, common phrases together as varied descriptions or descriptors of the same thing. The issue of conflation and overuse of the term "critical thinking" for mental activities that may not be so (e.g., "critical reading" in SAT as most of these students pointed out) seems to be prevalent in varying ways; it deserves further exploration, which will be discussed in a later chapter.

thinking, which started in high school for Faye, seemed to have been a particularly rewarding experience for her, as is evident in her following recollection: "I thought it was really interesting, interesting as I've never thought or felt like that, because in middle school, you're just memorizing." Drawing upon Faye's reflection of critical thinking, it may be argued that such a thinking process was intellectually exciting because it enables one to explore the deeper construction or creative level of why and how something—a piece of literature, art, or knowledge— is made, rather than its surface or factual level as a mere given. Arguably, moreover, such a critical, analytical, and detail-oriented process prepares one for further creative (re-)construction of something new. In other words, creative thinking and critical thinking can be intimately connected.

Perhaps impressed by this initial yet rewarding exposure to critical thinking in literature, Faye, who was a liberal arts student before switching to physics (and later engineering), believed that critical thinking in the sciences can also be described as "thinking outside of the box":

> They give you a problem, but then [with] the information they give, you can't solve the problem. You have to get other information from it. Say, you have to think of other formulas and how to plug it into a formula they give you or a formula they indicate, and there's also other parts to the formula…so you have to take that into consideration, when you're solving a problem.

Given her explanation above, the "box" in the sciences seems to represent for Faye any given problem and its contingent information or formula, just as a chosen work of literature for analysis functions in the humanities. Moreover, in an arguably similar way to understanding the meaning of a literary text, problem-solving in STEM also requires one to think rigorously by moving beyond what is provided and by recalling or connecting different pieces of preexisting knowledge or information that may not be immediately apparent.

While Faye's description of problem-solving resembled descriptions provided by a number of other participants from the sciences, such as Alex's discussion on this topic in subgroup 1, most of them described such a thought process as an example of "logical thinking"—i.e., a tightly structured, step-by-step, and deductive procedure that is perhaps particularly prominent in the more basic STEM disciplines, such as math and physics. In addition, most of these STEM participants seemed to consider logical thinking as a mere aspect—i.e., basic but perhaps not the most essential aspect—of what they understood as critical thinking. For example, Claire questioned logical thinking as critical thinking, arguing that the latter entails much more, such as the necessary component of examining one's belief system. Joanna, another physics/engineering student, also discussed the importance of independent thinking and self-reflection more extensively than logical thinking in her description of critical thinking. Even Alex, whose conception of critical thinking is most mechanical or logic-centered, made an implicit distinction between deductive and inductive logic—or what he called "logical thinking" and "comprehensive thinking"—as two distinctive aspects of critical thinking. In other words, finer distinctions can be and should be made about the varied manifestations of critical thinking across disciplines and domains; lumping them all under one descriptor or phrase, such as "thinking outside of the box," may obscure variety or differences within critical thinking that makes it a rich or multi-dimensional concept and practice.

Granted, Faye also mentioned or demonstrated additional aspects of critical thinking in the interviews. For example, the correlating dispositions of being more open-minded, less judgmental, and willing to understand the other, as indicated in the following response: "I think critical thinking just opens up your mind more… [also] don't judge people's experiences and their

opinions, try to understand them—I think that's also my definition of critical thinking." Elsewhere in our conversation about her practice of critical thinking in the domain of everyday life and decision-making, Faye also briefly described it as creating "a mental list of pros and cons" and approaching decisions "in different ways, in different aspects." Even though her description was relatively vague, it did seem to suggest that thinking comprehensively, as mentioned by Alex and other students, was also part of her implicit understanding or practice of critical thinking. By contrast, Faye's thought process in the social/sociopolitical domain was demonstrably more detailed and articulate. On issues that were close to her experiences—e.g., racial marginalization and hierarchy in the U.S. for her as a Chinese immigrant and worker strike that was taking place on campus around the time of our second interview—Faye's observant and thoughtful responses indicated further abilities and dispositions important for critical thinking, such as keen observation, careful judgment, independent thinking, and openness to modify her conclusion should new evidence or perspectives become available.

Yet in spite of these additional aspects indicating a substantial grasp of critical thinking in Faye's daily practices, some key elements highlighted by other participants, particularly those in Group I, were largely absent in Faye's account. Namely, an active self-reflective component for what one believes or interprets and a questioning spirit toward what is presented as a given. And these missing aspects may, at least in Faye's case, be two sides of the same coin—i.e., a weaker reflectivity (or "reflexivity")[242]—that direct either internally toward the self or externally toward the world one experiences.

[242] "Reflexivity" in its second meaning—i.e., reflectivity—as a sociological concept discussed in the theoretical framework chapter.

More specifically, the lack of a questioning spirit may be discerned in Faye's description of critical thinking that emphasized understanding, analyzing, and problem-solving, rather than doubting, problematizing, and critiquing. Borrowing Faye's description or analogy of critical thinking as "thinking outside of the box," it seemed as if her critical thinking was more about going deeper and exploring what is inside or behind the box rather than gaining a vantage point outside of the box in order to better evaluate and reflect upon its very presence, quality, and legitimacy, etc. This technical orientation of Faye's critical thinking—analyzing without necessarily problematizing or critiquing—was also evident in a number of other responses she offered. For example, even though Faye was taking primarily physical science courses, she claimed in her initial online response that she was using critical thinking "every day," because "in all of my classes I have to think critically." This general response about what forms of academic thinking may or may not constitute critical thinking contrasts with the more discerning responses provided from other STEM participants who exhibited higher levels of critical thinking and typically questioned the extent to which critical thinking is in fact practiced in their courses beyond its narrower form as logical thinking. In a later interview, Faye did retract her initial response a bit, commenting briefly that she "might be using critical thinking" less in college due to her science-focused course load and that critical thinking in STEM vs. the humanities may not "really [be] the same thing." Yet in another instance, while most participants questioned or rejected the idea that the SAT tests students' critical thinking skills, in spite of its reading section being labeled as "critical reading," Faye claimed that the test "consists of a lot of critical thinking," because it requires "analyzing and solving problems." In other words, Faye's responses

consistently demonstrated an understanding of critical thinking that is largely monological and technical rather than multilogical[243] and question-oriented.

Faye's weaker self-reflective component manifested most apparently in her responses to issues in the domain of everyday life decision-making. For instance, in the second interview, Faye mentioned that she had gotten into a highly regarded engineering lab as one of a few undergraduate volunteers. The lab offered her a rare opportunity to become involved in research topics close to her interest, but she was later let go after missing a few lab meetings, as she recounted in the following quotation:

> [What happened?] I got really busy and missed few meetings; and they told me that I'm not ready for lab. And I guess this is why partially why I am doubting now, because this really famous person told me I'm not ready for lab, that I am like OK, I am going to believe you. [Why did you miss those meetings?] Because I was really tired. [Did you let them know ahead of the time that you would be missing some?] No. [Were the weekly meetings required?] Actually, they didn't make it clear, and that's why I thought maybe it would be OK. Uhm, yeah, they didn't make it clear, but I think it's also my fault. [How did you interpret the PI's decision to let you go?] I just interpreted as I am not ready for the research group as a whole, as in my whole life, I can't be in a research group. [Why?] I don't know. The thing is that at the time my grades were also slipping really badly, because the courses were really challenging. [Do you agree with your interpretation of the rejection at the time?] Right now, I don't know. Right now, I am just trying to go through this quarter and I am going [back] to China, because I have an internship there.

Faye's interpretation of the termination notice as a total rejection of her participation in rigorous scientific research is surprising, given how persistent she had been up to this point in preparing for this academic/career path that she initially described as her only passion. The self-defeating

[243] While various scholars working in the field of critical thinking have used the pair of concepts—i.e., "monological" vs. "multilogical" to distinguish critical thinking from mere logical thinking, I draw upon here the accessible explanation from Paul & Elder (2013): "monological problems: one-dimensional problems that can be solved by reasoning exclusively within one point of view or frame of reference. Many problems we face in human life are monological in nature….[However,] many significant human problems are multilogical problems….multilogical problems [are the ones] that should be analyzed and approached from more than one point of view or frame of reference" (p. 410).

response may have resulted from a crushing feeling Faye felt at the time, when she was told by the esteemed professor that she was "not ready for lab." As Faye mentioned elsewhere in the interview, even though she tried to "think in a logical way," her thinking and judgment would usually be flawed when "emotions g[o]t the better of [her]."

It may also be worth noting that instead of negotiating for another chance at the lab by communicating with the professor about her misunderstanding of the lab expectation and desire to better prioritize the opportunity, Faye seems to have simply taken for granted that what was communicated to her—especially from an authority figure, as she emphasized in the quotation—as final. Her acquiescent attitude towards the negative feedback seems to further evidence the lack of a questioning disposition and self-reflective element in the way she sometimes processed information and made sense of her experiences.

Granted, Faye's reaction above took place at a time when she was already struggling academically, having just transferred to WRU (a more competitive research university in comparison to her previous university) earlier in the academic year and suddenly finding herself learning along with "way too many smarter people, who are a lot more comfortable with science." In addition, out of both interest and ambition, Faye quickly joined numerous engineering clubs in the same year; she later regretted it as "a bad decision," because it left her without sufficient time for studying or research. In other words, the lab incident happened at a time when Faye was reeling from academic setbacks and dampened self-confidence—"I wonder[ed] whether my brain is wired to do this sort of thing [i.e., STEM]."

Yet the hasty generalization response (a logical fallacy) to the rejection at the lab suggested a kind of emotionality or irrationality that contrasted sharply with Faye's demonstration of critical

thinking in other domains. Recalling also her claim on the importance and frequent usage of critical thinking in her daily practices, I asked the ensuing follow-up questions:

> [If you were to apply critical thinking to this event, what would you have thought?] Uhm [long pause]. [You had defined critical thinking as thinking outside of box, being open-minded, withholding judgment of others, and coming up with different solutions to a problem… do you think such critical thinking can be applied to this situation?] Yes. Yeah, I was not applying critical thinking to that situation. [So if you were to apply it, what would you have done; would you have thought differently?] Yeah, I would just go ahead and find another lab. [Rather than explaining your situation to that lab director and ask for another chance?] Because they kicked me out, that means I can't really stay in that lab anymore. And there're also other research lab, so. I think I was just way too burned out.

My question about her application of critical thinking to this scenario seemed to take Faye by surprise. Her long pause following the question suggests that it may not have occurred to her to think critically. Once she recognized the lack of it, she was able to come up with a different response or solution by applying critical thinking, albeit in her particular way: as problem-solving rather than examining what was given or what she had assumed.

2. Selfhood

Like her critical thinking which demonstrated sophistication in some domains but was absent in others, Faye's selfhood also exhibited uneven strength, indicating both a self-affirming capacity and a hidden other-orientation in the way she perceived herself and made decisions.

The complexity of Faye's selfhood is perhaps most evident in her impassioned pursuit of an academic and career trajectory that she may not have been particularly good at—especially in comparison to others who had demonstrated early interest and aptitude. Responding to the question of how she decided on physics/material science as her major, Faye explained the following:

> Because in high school, everyone was thinking about their future, their careers, like my friend was dead-set on medical school, and I thought—*what did I want to do*—because I didn't have any ideas. So I just, it was like for two months, I went online and just searched "future career ideas" and I thought, for my background, *what did I really care about since I was little?* I thought I cared about the environment and what I can do to make it better. So, I just searched solar energy and wind energy. And one day, I can across [research group's] website and that got me interested in solar cell research and also [WRU]. So when I was at [the previous university], I wanted to transfer to [WRU] from the first year.

Faye's explanation demonstrates certain thoughtfulness or elements of critical thinking, such as gathering information or sources through inquiry or research, proposing and addressing questions of (personal) significance, and considering her own positions or interests in the decision-making process.

Yet when we explored her interests more fully, it quickly became apparent that her interest in STEM was relatively new and sudden, as she commented the following on her academic interests prior to college: "In terms of the subjects—it [did]n't matter what the subject [wa]s, as long as the teacher was really passionate about it." In addition, Faye stated repeatedly throughout the interviews that she had lacked the necessary preparation and perhaps propensity for STEM disciplines, as she added: "I haven't really gotten solid foundation in math and sciences, because I thought I was really bad at it in high school." By contrast, her innate curiosity about "people in general" and "how the world works" seemed to have been a consistent interest throughout her development, manifesting in various forms, such as her propensity to observe people in social interactions, her childhood dream in becoming a children's book author, and her initially proclaimed college major in psychology before the switch to physics/engineering.

Impassioned, however, by what she had gathered online about the research group on solar energy and a career path that may not only satisfy her intellectual curiosity but also ambition or idealism in making a difference in the world, Faye decided that she "wanted to try and challenge

[her]self." As a result, she took numerous prerequisite math and science courses in college. To her surprise, she performed better than expected, as she said: "this change was really new and sudden to me, because suddenly I found that I could succeed in a STEM major." Moreover, through hard work, Faye was sufficiently successful in her courses in the first two years to be able to transfer to the more prestigious WRU and move ever closer toward her dream.

Arguably, Faye's pursuit in the early stage seemed to suggest a fairly strong sense of self—one that was affirmational toward what she recognized as her interest or passion, even though such a passionate interest was inspired by others. It was hard to discern at this point whether Faye's sudden passion for the sciences was part of her innate individuality that had not been fully recognized, as was the case for Claire who did not discover her talent for mathematics until college. Perhaps more alike to Claire than to Jiayi, who struggled to follow her own interest in the face of familial intervention, Faye exhibited a similar self-affirmational stance of trusting or "go[ing] with" what felt inspiring to her, especially after she realized that she "could do" the sciences as well. It can be further argued that by being willing to face the uncertainties and risks that may come along with following one's individuality or passion, Faye demonstrated personal strength in being able to trust herself; as a result, she was able to grow or achieve in a way well beyond what simple, linear logical calculation could predict based on her earlier academic trajectory.

In addition, the strength of Faye's selfhood may also have been supported by a more advanced epistemic position that was relativistic rather than binary, allowing her to make sense of her experience in a more accepting and self-affirmational way. For example, Faye did not seem to feel as daunted, as it was the case for Jiayi, in choosing her own path that was against her

parents' advice and that may not assure her immediate success. She explained her rationale in the following way:

> I think you just have to keep trying what you want until you get what you want, since you know, Jack Ma, he's not that successful in his 20s either. I think it's different for everyone—some people just succeed on their own on a straight path, like what you said, but some people their paths are more convoluted and you can't predict where they'll go next… I met some people I know that people are all different from one another—maybe some people's straight paths aren't as straight as you think, so everyone has their own difficulties and difficult decisions to make. So I don't think anyone has an exact straight path, they have to have a little setback during their, yeah.

Faye's explanation demonstrates that she has thought through the issue with care and criticality: she observed numerous life stories, questioned the notion of a straight or correct path, and concluded that the way toward success may simply vary among different individuals. Perceiving herself as belonging to the second group, in which the paths are "more convoluted," Faye seemed to be able to focus her energy on "try[ing] more" rather than doubting herself or her decision as being perhaps wrong or flawed. In other words, Faye's relativist epistemic position may have allowed her to be more accepting of differences and permitted herself to be more affirmational and risk-taking toward in her decision-making process.

Yet in spite of her strong drive and almost desperate persistence—as she explained, "since it [has been] my goal for the past two, three years, I don't think I can fail… [because] I don't want to fail, and that's [been] my motivation"—Faye was clearly struggling even in the first few months at WRU when we met for the first interview. She spoke nervously about the need to study really hard: "I still don't think I am good at STEM classes. I am still really behind from most of the people" in the major. Moreover, she commented that because of her intense focus on the academics and lab opportunities, she found little time or interest in socializing or doing things for fun: "I guess that makes me a little cranky sometimes to other people." As this was the initial

context in which Faye described her study and plan to realize what she felt to be her only career passion, it contrasted sharply with her later actions and responses as revealed in the second interview.

Tying back to the lab scenario discussed in the previous section on her critical thinking, Faye was let go because she was "burned out" and had missed the weekly meetings due to her involvement in numerous clubs, albeit career or research related. As she explained later, "I was too stubborn; I failed to see that if I could drop a club, I would have more time and energy to do the lab." In other words, in spite of knowing it was necessary to stay focused in order to catch up and the need to prioritize her courses and lab work, Faye could not follow through on her apparently more rational or reasonable plan. As a result, Faye became exhausted and increasingly doubtful of her ability to continue pursuing academic research, especially as her grades were also "slipping away really badly." The termination notice from the lab, which came in the midst of these changes and challenges, must have shaken Faye's self-confidence in a significant way, perhaps stunting her ability to process the event without generalizing it emotionally as a total rejection of her chances to ever do the kind of research that had strongly motivated her until that point.

By the time we met for the second interview, there was a noticeable change in the way Faye thought about her future, shifting from a singular focus on what she had felt passionate about to a broader consideration of what might be reasonable for her to achieve, as is evident in the following comment: "I feel like I need to be realistic and I need a job." Moreover, when I reminded her of the persistent spirit she had expressed so strongly in the first interview, Faye responded with a genuine expression of surprise: "Oh, wow, I was such a different person back

then…. If you ask me to give you an answer—if I still want to persist—I am going to tell you, I am not sure."

Interestingly, Faye also kept using the word "stubbornness" in the second interview as an all-encompassing term for explaining the problems she was encountering. As we explored in greater detail the underlying reasons for her "stubborn" choices and time mismanagement, she did have more to reveal:

> [What caused the stubbornness] I guess the competition, and inherently, I am sort of competitive. [Do you mean that you didn't believe you cannot have both—the clubs and academic priorities—but believed that you can have it all, only if you try harder?] Yeah. [Where did this notion come from?] I see other people do a lot of stuff, I sort of just wanted to be like them. Yeah, I guess I was just comparing myself to them. [When did it start?] I guess it also has something to do with winning and losing, and I didn't want to lose. If I drop a club or anything I was doing, I'd be losing. [Where was this notion coming from?] It's also because my parents compare me to a lot of people—to their friends, friends' children, and even dead famous people, like Einstein. And also my uncle; he's the main one—because he went to Harvard for graduate school in physics, and he was studying every day. And my parents were like you should be more like him. [Did they convey the message that you should persist?] Not persist, but they are more like you should be able to do it. [Just because other people have done it?] Yes.

Faye's more hidden other-orientation becomes apparent in her explanation: she overpacked her schedule because of what she had seen others who were capable of doing or achieving; she wanted to emulate them. When it became apparent she could not manage all the commitments, she refused to cut down her activities, fearing that would be a sign of failing—in comparison to those who were outstandingly successful. And both her ambition to succeed and fear to "lose" stemmed from her internalized assumption from her parents—which seemed to be quite pervasive in China—that she should be able to do what "everyone else [i.e., the few with impressive success]" does. Therefore, instead of focusing on her own learning trajectory toward realizing her dream in doing solar energy research, Faye became preoccupied with real and/or

self-projected “competition.” Moreover, Faye’s sudden retreat from her purported passion in the face of setbacks may also beg the question of how genuine that passion for scientific research was in relation to her natural inclinations or interests, or whether it was conjured substantially by her ambition to succeed in some noteworthy ways as her upbringing seemed to demand.

Perhaps Faye’s later comment about her sense of self-knowledge can be quite telling, as she said candidly: “I think over the years I got more self-aware, and I realized that I don’t really know myself, and I need to work on that, but it’s been too busy.” Arguably, what was hidden from Faye’s view and made it challenging for her to know herself and better guide her choices are two competing forces or orientations within her selfhood. That is, on the one hand, Faye appeared extremely self-driven, affirmational toward her interests and passions, and “stubborn” or persistent with her decided pursuits. Her trust in herself seemed so strong at first, as she was both unfazed by her parents’ eventual disapproval of her choice of major and unperturbed by the possibilities that many others would have chosen a more secure path toward success. On the other hand, in moments of setbacks and doubts, it became apparent that Faye also had a strong but less apparent other-oriented dimension—imbibing generalizing comparisons and ambitions from others that were inhibitive of more nuanced consideration and thus rational reasoning. In other words, the unexamined internalization of such external irrationality may have been a major underlying cause for Faye’s “stubbornness” or “bad decision[s]” in the way she later feverishly pursued her passion or ambition.

3. Conclusion

It may be argued that the seemingly conflicting sources of the self within Faye highlight her deeply cross-cultural identity. Having immigrated to the U.S. at a younger age than most transnational Chinese students in this study, her longer exposure to American education and culture since elementary school may have contributed to her greater receptivity to the concept of following one's own passion. Granted, the idea of passion—particularly in the sense of one's genuine self or individuality—seems to have become popular globally in the recent decades, just like critical thinking, as it was embraced by most participants and, reportedly, their friends in China as well. However, as Jiayi's story demonstrated a "vexing" struggle between passion—referenced frequently in the U.S.—and practical gains and security—emphasized regularly in China, most participants who had not stayed in the U.S. as long, also exhibited a more cautious and balanced attitude in the way they incorporated passion into their decision making. In other words, Faye's less cautious and almost unreflective trust in what inspired or impassioned her may have been a more acculturated response to the American side of her experience as an immigrant and transnational who identified with "a little culture from both sides." And this trust in passion, along with an appreciation for diversity and differences, may have contributed to the self-affirming orientation of her selfhood as manifested in the resolve she had initially about pursuing a challenging STEM major.

At the same time, socializing in a predominantly Chinese-speaking immigrant circle of family members and friends in the U.S., Faye seemed to have also unreflectively trusted certain beliefs or popular notions from the Chinese side of her association. Her internalized idea that she should be able to do the same just because of others who had done so contains an underlying assumption of sameness—e.g., that everyone desires more or less the same thing, possesses

similar capabilities, and needs to succeed in a particular way—with the only difference perhaps being that some push themselves harder than others. Such beliefs, though prevalent in Chinese culture, especially among the older generations, actually conflict with Faye's epistemic position, which was less assuming, more relativist, and open to differences. Yet as Faye did not appear to have noticed the conflicting aspects within herself, she was at the mercy of the beliefs or forces that she had internalized yet unexamined. Her later exhaustion and setbacks revealed in the second interview, were arguably the result of such unexamined beliefs in sameness and competitiveness.

As discussed in the cases within subgroup 2 (Eleanor, Nathan, Arielle and Cindy), passion or an intense focus on something one desires may not in itself be an irrational force—inhibitive of rational or critical thinking; rather, it can function either way. That is, when left unchecked by rational doubt and judgment, passion can be an irrational force that blocks further reflections or critical thinking, as exhibited by the subgroup 2 students whose otherwise robust practice of critical thinking was conspicuously missing in areas dictated by their passions. At the same time, passion can also function as a non-rational force, like "inner voice" or "faith" as discussed in Group I, which takes one to unknown territories beyond the narrow confinement or comfort zone of linear logic or rationality, after which rational reasoning can still be useful in helping the person operate in the new territory or adventure. In other words, passion in itself may not be the problem; it may, in fact, work well with rational or critical reasoning in supporting a person's development in a more unique and satisfying way. Arguably, the collaboration of passion and rationality was evident in the early stage of Faye's pursuit. She took the leap to follow her new-found passion; by doing so, she was aware of the latent risks in challenging herself in unfamiliar

academic territory. Therefore, she was very focused and worked hard to see whether she could make it. Once the results of her effort suggested that she might be able to succeed in her STEM courses, she then decided that she could pursue it even further.

In other words, the irrationality and setbacks that began to surface in the later stage of Faye's pursuit of STEM may not have been a problem of following one's passion but a lack of accompanying reflection that could regularly check on her ensuing actions toward the intended goal. Arguably, the generalizing assumptions that Faye had internalized from her upbringing about competing and being able to do the same may have further stunted any reflective element Faye might have had in her thinking process, aggravating the irrationality in her impassioned pursuit of an academic dream. At the same time, there was also a general lack of a questioning spirit and a self-reflective element in Faye's conception and practice of critical thinking, as discussed in the previous section. Had her critical thinking been more robust, particularly in the personal domain, she might have developed greater sensitivity toward the external irrationality or generalizing notions that she had internalized. Such sensitivity might enable her to develop a better integrated sense of self and make more conscious and balanced choices suitable for her unique situation.

In short, Faye's case highlights how social expectations and/or familial pressures, when unexamined, can be an irrational force that misguides our development in the intrapersonal dimension—the way we perceive who we are and how we should act—that affect our ability to think critically in the personal domain and make wise decisions. As an immigrant/transnational student, Faye's case also sheds light on the cross-cultural aspect of her identity, in which expectations and values from both sides of her world—China and the U.S.—took roots in her

selfhood, shaping her sense of self and decision-making. While the bi-cultural or multi-cultural mode of existence may come, as Tim said, with greater opportunities and flexibilities that enable them to traverse both worlds, it also comes with compounded expectations and contending values that can cause greater disorientation, risk, and fragmentation. While critical thinking may be limited in the way it functions—e.g., easily overshadowed by negative emotions such as fear that can block a person from careful thinking and send him/her to a fight-or-flight response—it is also one tool that can mitigate the external or irrational forces by calling them into question and analyzing them for better understanding. Critical thinking as such would invariable entail a broader or richer conception beyond the dominant approach of logical thinking and analysis fostered in the academic domain, as captured in Faye's conception and practice; it would entail a more conscious cultivation of a questioning spirit and self-reflective component that seemed to have been missing in Faye's case.

Chapter 7. General Pattern Analysis

This chapter contains four main sections that address the different components within the two empirical research questions proposed by this dissertation. These sections are discussed in the following order: (I) what are participants' experiences with learning to think critically? (II) what are their perceptions of critical thinking? (III) what factors may have shaped their varied critical thinking development? (IV) how has critical thinking played a role in their overall development as cross-cultural learners?

In comparison to the in-depth analysis of the cases in the previous two chapters, the analysis in this chapter aims for breadth by focusing on general patterns that may be uncovered about the participants' experiences and perceptions of critical thinking as well as the underlying causes that may have impacted their varied critical thinking development. As almost all of the 20 cases have been discussed in detail in chapters 5 and 6, the analysis below will frequently draw upon summary knowledge from those discussions or make references to individual cases that readers can refer back to.

I. Critical Thinking Learning/Development Pathways & Experiences

This section analyzes participants' critical thinking learning/development[244] pathways and experiences. By addressing the questions of *when, where,* and *how* participants started

[244] For some students who initiated critical thinking on their own, they often felt that they had developed it naturally rather than having learned it consciously, even though learning of the more systematic or disciplinary forms of critical thinking would occur later in college for them.

developing critical thinking capabilities, the following pages respond directly to the first part of the first research question proposed by this dissertation: *what are transnational Chinese students' experiences with critical thinking?* The following patterns in these students' critical thinking learning or development processes center around the time of their initial critical thinking *development* (as a way of thinking that contains a set of particular characteristics, such as an independent and questioning spirit) rather than their initial exposure to the name or *concept.* This is because while most participants were exposed to the concept "critical thinking" in English, toward the later part of high school (usually via preparation for the SAT) or in college, a substantial number of them felt that the actual development of their critical thinking had, in fact, begun much earlier.

1. Prior to High School, in China

In contrast to the literature in which critical thinking has been portrayed consistently as something new and particularly challenging for Chinese students abroad, a surprisingly large portion of the participants in this study—a little bit over 1/3 (about 8 students at least) of the total participant population—seems to have developed substantial aspects of what they would later recognize as "critical thinking" in their early years, well before college and even high school, in China. Additionally, a few more interesting sub-patterns may be observed among these early developers of critical thinking. First, they occupy higher positions in the relative critical thinking spectrum generated from the study, clustering in Groups I & II, which may suggest the benefit of being able to develop critical thinking early in life. Second, although most of these students recognized their early development and described it explicitly in interviews, a few did not

recognize it as such; however, their stories of early experiences demonstrated a clear development of their critical thinking. Third, while a few students developed critical thinking early due to the unusual pedagogical practices of a particular teacher (in 1 case) or the critically-minded guidance provided by their parents (in 2 cases), most of these students had initiated the developmental process on their own.

I will address the first two sub-patterns, as brief explanation may suffice. This is because the first sub-pattern on the higher levels of demonstrations of critical thinking abilities among the earlier learns, as indicated in the Excel document (see Appendix VII), is apparent or self-explanatory. The second sub-pattern on students' varied recognition of their early development of critical thinking can be summarily explained as follows: it has largely to do with their understanding of—or the lack of—what "critical thinking" entails in the academic settings abroad.

More specifically, among the few students (i.e., Dio, Cindy, and Antonia) who did not explicitly recognzize their early critical thinking development, most of them also expressed, as analyzed in the group analysis chapter, confusion about what the word or concept meant. Both Dio and Cindy observed that while the word seemed to be particularly popular in the U.S. or in the English language context, its meaning was largely assumed rather than explained by their instructors. As both students professed a lack of understanding of the concept, they naturally were unable to make a confident claim about whether or not they had started developing critical thinking, as they in fact did, early on. In Antonia's case, her conception of critical thinking—i.e., "be[ing] skeptical," "dig[ing] deeper," and "question[ing] claims" made by others and by oneself—matched with her self-guided critical thinking actions in elementary or middle school.

Her lack of conscious recognition of such an alignment and thus her early development of critical thinking may be due to her general modesty as someone who was consistently "undervalued" in her youth as well as the time and context in which she was first exposed to the concept "critical thinking" (e.g., much later, in college).

In the following pages, I will elaborate on the finer points in the third sub-pattern; namely, the different forms of early initiations of critical thinking that occurred before high school.

(1) Natural development on one's own

The five students who began their critical thinking development independently are Claire, Eleanor, Antonia, Dio, and Hill. While details of the early development of the first four students have already been provided in the two previous chapters, relevant quotations from Hill—who was only mentioned briefly in Group II Subgroup 4—are provided below to help us revisit some of the common factors that seem to have propelled this "natural" or self-initiated development of critical thinking:

> I feel I've always had thoughts that contained elements of critical thinking, especially when I was taking history and political education courses. The teacher won't say it, but I would wonder and suspect that what was told to us may not be right, because the narrative was so obviously one sided—praising highly of one side and condemning harshly of the other. I think the reason why I had developed this [critical/independent] attitude is probably because of the numerous "liberal arts"[245] books I had read earlier, when I was in elementary school.
>
> [Did you have many books at home?] Yes. [When did you read these books?]. In elementary school, I read mostly foreign literature and history [in translation]…and watched lots of foreign movies, which had a huge impact on my development of pluralistic values. Then starting in middle school, I began to read more books by Chinese authors; I

[245] Hill's word choice in English, in a quotation that was spoken mostly in Chinese; the occasional word choice in English seem to reflect key foreign/non-Chinese concepts that have been influential in his thinking and development.

especially enjoyed Wang Xiaobo and Lu Xun's works, along with, of course, the more popular ones like a few by Han Han[246] and some reference books as well.

Hill's reflections above suggest two external conditions that stimulated his early critical thinking development and exhibition: first, access to knowledge/information in the forms of books and movies that offered him different points of view and exemplified what it means to think independently or critically; second, a contrary social/educational reality that spurred his suspicion and critical thinking process.

In addition, the paradoxical nature of the coexistence of these two conditions is also apparent: while the "liberal arts" books readily accessible at home or in other informal settings transmitted diverse viewpoints that fostered critical thinking, politics and history lessons in formal education imparted party ideology that cultivated a performative ignorance perhaps antithetical to critical thinking. Yet borrowing the psychological term of "cognitive dissonance," the lived disparity between one's ideal/private world and the "real"/public world may have become the very impetus for students like Hill to begin questioning and thinking.

To varying extents, one or both of these external conditions can also be found in the other four students' early critical thinking development. In Dio's case, for example, it was primarily access to an online discussion group about her favorite manga that provided the initial impetus to think more carefully and consider different perspectives. Arguably, the online exchange of ideas functioned in a similarly informal yet educational way for Dio as the books did for Hill. In other cases, it was perhaps an acute sense of dissonance, accompanied with strong emotions of

[246] The three influential Chinese authors mentioned by Hill are well-known for their particularly trenchant social/sociopolitical critiques of Chinese society in modern or contemporary times, as well as their humor and literary qualities. Some of their works have been translated into English and published by major academic or commercial publishing houses in the U.S.

injustice and angst, about what they experienced in school that triggered students' critical thinking and action: e.g., the rigid educational system against which Claire willfully rebelled, the prevalent bias against average and disadvantaged students which Antonia bravely resisted, and the ideological indoctrination and control of information which Eleanor deeply suspected. Apparent in all of these five cases is a contrasting set of messages and realities transmitted by these students' formal and informal educational settings.

Granted, such a coexistence of paradoxical forces may be prevalent among the formative experiences of the young in China today due to the increasing influx of foreign cultures and ideas on the one hand, and the strong hold of traditional practices and party ideologies on the other hand. Yet those who develop independent/critical thinking at an early age may still constitute a minority of the total student population in China. Therefore, not only external but also internal factors also played an important role in these five participants' early and self-initiated critical thinking development.

In terms of internal characteristics, all of these students exhibited a strong will or determination and a natural propensity to think or reflect upon their experiences. Claire's will power was so strong, for example, that she decisively quit high school or the conventional pathway for success and chose to take the risk of something relatively unknown to her at the time—the option of studying abroad before college. In addition, in their upbringings, most of these students did not experience frequent parental intervention or control over how they spend their time outside of school. While they may not have received active encouragement or guidance from their parents, neither did they encounter active discouragement (at least when

they were young) that would have significantly hampered their intellectual confidence and their propensity to pose questions.

Antonia's experience with her parents may be an exception here, as will be discussed later in a different section on the parent-child dynamic as a likely factor impacting students' critical thinking development. It may suffice to say for now that even though her parents' approach to parenting was often traumatic for her, she developed a self-protective layer within her fiercely private sense of self that shielded her from their negative influence. In addition, it may be worth adding that neither the parents of the other four earlier learners of critical thinking were not necessarily liberal minded. Their relatively more relaxed or congenial parenting styles seem to have stemmed, in part, from their natural temperament and, in part, from the fact that their children were excelling academically. In other words, these students' abilities to succeed in school, as some noted, earned [them] the privilege and parental confidence[247] to be largely left alone and free to explore.

(2) Guided development via unusual parental effort

Although the number may be small, a few participants' parents seemed to have been unusually open and liberal-minded and took the initiative to cultivate similar dispositions in their children. In the group analysis chapter, an account is already provided on how Cindy's initially binary perspective learned from school (about Japanese during WWII) was expanded by her

[247] This does not mean that the onus is, therefore, on the children to be able to earn parental trust before parents can practice a more understanding, empathetic, and relaxed parental style with their children. There are also cases in this study in which unconditional parental confidence and support, e.g., Hanna and Taylor's mom, strengthen the child's ability to excel in the academic and/or other domains of life.

mother's deeply reflective and contextualized thinking about the topic. In the following quotation, I will draw upon Hanna's case, which was mentioned briefly in Group II Subgroup 3, to demonstrate this parent-initiated early development of critical thinking.

According to Hanna, she had very low self-esteem as a child due to her lackluster performance in school and an older sister who was extremely smart and competitive. Unlike other family members who often unwittingly compared them, which would further plunge her confidence level, Hanna described the following guidance from her mother that made a significant impact on how she would later perceive herself and others:

> I had such a low self-esteem that I would skip school to play, just to get away from the pressure. But then my mother told me: some kids bring honor to the family; others bring joy. Everyone is different and has something different to add to their families. Suddenly, I thought, wow, I may have something of value too.
>
> When I was not doing as well as my sister in school, my mother wouldn't say, you should be able to do the same as your sister. She would say, your sister might just be really talented academically; if you try compare yourself with her in this area, you might give yourself too much pressure. She wanted me to find my own talents…and would never give us undue pressure but allowed us to play and explore our own interests.

As Hanna explained elsewhere in the interviews, her mother's parenting style was unusual and stemmed from her mother's ability to think critically—something she learned the hard way by having to talk to many people as a sales person and learn from her own trials and errors.

Describing her mother as an initially competitive and strong-willed person who was quick to judge others, Hanna said that her mother learned from her job about how to be sensitive to others, aware of her own assumptions, and open to differences as something potentially valuable. Applying these life lessons from work to her parenting responsibilities at home, Hanna's mother frequently talked with her daughters about what she had learned and how she thought in order to solve complex problems at work and in life. In other words, a conscious effort

was made on her mother's side to make sure that Hanna and her sister would be able to analyze an issue in a comprehensive way (i.e., by understanding its current context, its history, and its possible future) and come up with an informed conclusion or decision that would be true to their own position or interests. Because of such communication and preparation at home, Hanna said that by the time she was first exposed to the concept "critical thinking" in college and saw how her professors analyzed issues in class, it felt "quite easy for [her] to grasp."

(3) Rare cultivation of critical thinking in formal education/middle school

In addition to unusually progressive parental influence (as evidenced in Hanna and Cindy's cases), one student, Audrey, described what appeared to have been a relatively atypical pedagogical practice, at least at the time, in formal education that spurred her critical thinking development:

> I first approached critical thinking in debate in middle school back in China. Not only did we need to research my own stance, we also need to look into opposite arguments and evaluate how much sense they make.

Audrey seemed to be the only participant who was able to explain with some details what the debate experience in middle school was like and how it resembled the kind of critical thinking that she would further develop in high school and college, such as deeper exploration of the issue through research, consideration of evidence and counterargument, and evaluation of arguments. She may have had an unusually positive experience in middle school where debates were encouraged; however, Audrey also mentioned later in an interview that as her middle-school class consisted of 60 students, which is typical of Chinese schools, "we [didn't] get to talk a lot to the teacher and ask questions in class." In other words, occasions for debate and critical thinking

practice may not have been frequent even in Audrey's middle-school experience. Her memories of early critical thinking development might have been influenced by her later experiences in high school, as will be explained further in the next section, where encouragements or a requirement to debate and think critically was integrated into almost every aspect of her school life.

A couple of students did vaguely mention having had some brief debate experiences or support from teachers in middle school who encouraged them to think more broadly. However, even these students, such as Taylor, would say that by and large, "teachers don't like students to contradict them or ask them questions in class; they preferred us asking questions after the class and paying more attention to listening and absorbing the lecture material rather than expressing our ideas." Similarly, Hill provided a more dramatic description of the common experience: "it almost feels incredulous or unreal…the whole time in middle school, teachers never wanted us to ask questions but [conveyed the message that] 'it is whatever I say' and there is only one way to solve a problem."

In short, as reflected from the participants' experiences, teacher-initiated early development of critical thinking was quite rare in China—at least at the time when these students were receiving their elementary and middle school education in the 2000s. In comparison, more parent-initiated and, particularly, self-initiated, early critical thinking development may be found in the younger generations of Chinese students than what the literature has suggested. Yet in spite of the varied occurrences, it is possible that all of these different types of early initiation into critical thinking may have grown in number in the recent years. This upward growth is reflected in the observations made by a few participants (e.g., Cindy and Taylor) that even a few years apart, their younger cousins were receiving noticeably different—more open-minded and

critical thinking-oriented—education in China. Such observations seem to align with the reports and studies indicating a rising interest, if not also a rising pressure due to economic competition and the global clout of testing giants (e.g., SAT and PISA), in teaching critical thinking in China and around the world (Dong, 2015; Lim, 2016; Schendel, 2016; Vincent-Lancrin et al., 2019).

2. High School, Wider but Largely Superficial Exposure

By the end of high school, most of the participants said that they had at least some exposure to the name or concept "critical thinking" through English-language courses and/or preparation for the SAT where one section was called "critical reading."[248] The large number of students having some knowledge about critical thinking prior to college seems due to the fact that most of the participants received education from non-traditional Chinese high schools–either outside of China (immigrant or parachute students) or in China from various types of international schools or programs[249]—where the concept was more likely to be emphasized. In other words, starting in high school, the cultivation of critical thinking through formal education becomes more prominent, even though the extent of such cultivation seems to vary greatly among a diverse spectrum of high schools that the participants attended.

The table below shows a segment of the demographic information collected from the participants, which contains their secondary education backgrounds:

[248] During the time when most of the participants had taken the SAT (expect community college transfer students for whom the SAT was not required for college enrollment and transfer), the reading section was called, since 2005, "critical thinking." However, in 2016, the name was changed to its current version: "evidence-based reading."
[249] "International program/division/class" refers to a special cohort within a regular Chinese high school that is designed to prepare students for college outside of China.

Participant	Major	Year & Trans	Secondary Education	Migration Status
Claire	STEM--math	3	4. American High (3 yrs.)	2. Parachute
Tim	STEM--stat. (SS minor)	4T	2. Chinese Int'l School (early drop ou	1.* International (more e
Dio	SS (Hum minor)	3	2. Chinese/International Div.	1. International
Audrey	SS	4	2+. Chinese Int'l School (boarding)	1. International
Joanna	STEM--engineering	4T (non-CC)	1. Chinese High/1-month college	1. International
Ray	STEM--engineering	3T	3. Chinese + American High	3. Immigrant
Alex	STEM--engineering (SS minor)	4	2. Chinese/International Div.	1. International
Eleanor	SS--Psych	3T	1. Chinese High/1-yr. college	3.* Immigrant (more ext
Nathan	HUM	3T	3. Chinese + American High	3. Immigrant
Arielle	STEM--engineering	3	1. Chinese High	1. International
Cindy	STEM--biological science	3T	1. Chinese High	1. International
Taylor	STEM--bioogical S. (SS minor)	4	2. Chinese/International Div.	1. International
Antonia	STEM--cognitive Psych	3T	1. Chinese High	1. International
Hanna	SS--Psychology	3T	3. Chinese + American High	3. Immigrant
Hill	SS--psychology	4T	2-. Chinese/Foreign Language	3. Immigrant
Faye	STEM--engineering	3T(non-CC)	5. American elementary (3rd/4th gra	3. Immigrant
Jiayi	STEM--applied math/Pre-med	3T (non-CC)	2. Chinese/International Div.	1. International
Erick	HUM	4T	5. Overseas elementary (3rd/4th gra	2.* Parachute (extensive
Lili	SS	3	4. American High	2. Parachute
Becky	STEM--applied math	3T	1. Chinese High	1. International

- Of the 20 participants in this study, only 6 went to "typical" Chinese public high schools (usually the top schools in the city or province) that were geared toward preparing students for the gruesome Chinese college entrance exam. However, if we count the 3 immigrant students who had received half of their high school education in China (and the other half in the U.S.), the number of participants who received some years of typical high school education in China would increase to 9, accounting for about half of the study population.
- Among the other 14 who took the non-traditional route for high school in China, 7 attended foreign-language/ international schools or programs of varying qualities: e.g., 2 went to schools that offered rigorous British A-level programs; 2-3 attended international schools or programs that provided extensive course instruction in English by using imported textbooks aligned with the American high school curriculum and hiring foreign teachers for the humanities and writing courses; 2 reported that their schools or programs were new and provided limited instruction and curriculum in English.
- Of the remaining 7 students, 3 were "parachute" students (i.e., those who started studying abroad early and on their own) and 4 immigrant students; all of them received at least a couple of years of high school education abroad, usually in the U.S.

(1) Traditional Chinese high school education

Of the 6-9 (depending how we count, as explained above) students who went to regular public high school in China, almost none mentioned having been introduced to the concept of "critical thinking" or a way of thinking via formal education that resembled what they would later develop as critical thinking. One of these students, Arielle, did say that she probably began developing critical thinking on her own, around the time of high school; however, she also felt that she had learned to think critically on her own, largely through unexpected life experiences and conversations with others that opened her mind.

While most students who went to public high school described an increasingly competitive and test-driven academic culture that left them without time to read extracurricular books or explore their interests, a few also mentioned having teachers in high school who were more likely to welcome questions from students and encourage them to think about issues in a more open-minded way. For example, Ray, an immigrant student who went to a Chinese public high school before emigrating to the U.S., remembered a teacher sharing another student's essay with the class, in which a comprehensive analysis with an unexpected point of view was proposed about a heated social controversy. As analyzed in greater detail in the group analysis chapter, this experience left a deep impression on Ray, because the proposed view drew a striking contrast to the binary view expressed by the other students and the general public. Ray realized that while people are often swayed by popular opinions without taking the time to find out about the details for themselves, good thinking takes time and should be based on "a thorough understanding of the issue."

Even though from this experience Ray was able to pick up elements of good thinking that would resemble what he later understood as "critical thinking," such learning moments or pedagogical effort from high school teachers in general seemed to be sporadic rather than systematic. The extent to which students can learn from such sporadic experiences—i.e., not just the content of what was being argued in an exemplary essay but the way in which the argument was constructed based on independent analysis—may depend largely by chance, i.e., on individual students' own intellectual effort and sensitivity.

(2) Non-traditional Chinese high school education, in China or abroad

By contrast, for participants who had received non-traditional high school education in China or had spent some years in high school abroad (in the U.S., except for one case), they were much more likely to have been introduced to the concept of "critical thinking" by the end of high school. The two primary sources of exposure to "critical thinking" for these students were literature/writing courses taught in English and/or the SAT. Interestingly, though, in spite of the various types of schools attended by this group of 14 participants, most of the students did not feel that they had received an adequate explanation or gained a clear grasp of what "critical thinking" entailed in their high school education.

For example, Alex, who went to a foreign-language school in China that adopted the British A-level system, said that even though he was aware of the concept of "critical thinking" in high school, he had "hardly believed in it." This is because the concept was vaguely explained as "thinking thoroughly from different angles and thinking logically," which sounded almost pointless to him because he thought, based on his own experience, "that was how everyone

already think." Granted, his grasp of critical thinking, or the lack thereof, may not have been due entirely to the school's lack of better instruction or effective cultivation. Alex added, admittedly, that he had been a rather inattentive student in literature courses, for the lack of interest and exposure to life experiences—i.e., other than the two main activities of "study and play" throughout his education before college.

Yet the lack of sufficient explanation about what critical thinking is and how to develop and apply it may be quite common among these students' experiences. For example, even though Faye felt that she had gained a fairly clear grasp of what critical thinking entailed from her initial exposure in high school, it was largely through her own effort. As described in the group analysis chapter, when Faye asked how to analyze and write critically about a piece of literature as required, her English teacher simply told her that she "just need[ed] to do more practice." Faye recalled that after receiving a bad score on her paper, she researched online, read sample analyses, and figured out that "critical thinking" may entail analyzing a piece of literature: "you're supposed to look beyond the surface level and dwell deeper into the meaning of the text; you have to think about the characters' feelings and the author's feelings in order to do a really good analysis." Even though this new approach to reading a text, when she eventually understood it, was "really interesting" for her, she seemed to have learned it largely through her own efforts. Unfortunately, this lack of clear explanation from teachers was not uncommon, because a number of other students (e.g., Dio and Lili as analyzed in the group analysis chapter) also mentioned critical thinking as, or being explained to students as, "deeper analysis" without much further elaboration.

A few students (e.g., Taylor and Claire) seemed to have gained additional insights about critical thinking beyond textual analysis from their high school teachers. For example, Taylor, who attended an international program at a top public school said that her English literature courses were taught by foreign teachers who introduced topics in American history and culture, such as racial diversity and inequality, and emphasized the importance of perceiving issues "critically." Even though Taylor was not able to recall the exact explanation of what the teacher meant by critical thinking in this instance, the historical knowledge and lenses of another culture broadened her mind and raised her awareness that "how we perceive things matters a lot." This initial exposure to critical thinking seems to have paved the way for her later, clearer understanding of critical thinking as a way to "consider issues not just from one side but from both [or multiple] sides." By and large, however, as Claire pointed out in her experience, such moments of expansion of one's perspective and insight in high school may not occur frequently within or outside of English/American literature and writing courses.

As mentioned earlier, another sources of exposure to "critical thinking" for these students was the SAT which had a "critical reading" section. However, for most students who had taken the test, the SAT reading section merely tested reading comprehension and analytical skills, not what they would consider to be "critical thinking" (their conceptions will be discussed in the next section). Some students commented that the test format itself—e.g. multiple-choice questions with a correct answer—seems to contradict their understanding of critical thinking as a way of processing issues that do not lead easily to correct or binary solutions but a complex analysis with multiple-perspectives. Others stated that one can earn a high score for the SAT reading section

by simply practicing test-taking strategies or tricks; therefore, it has little to do with whether one can think critically or not.

Among the 10 or so students who took the SAT, Jiayi and Faye seem to have been the only ones who felt that the SAT reading section tested students' critical thinking—by which they meant largely logical analysis and/or speed reading comprehension skills. While Faye commented only briefly by stating that the SAT "has a lot of critical thinking, such as analyzing and solving problems," Jiayi was able to provide a much more substantial account of what she had found in the SAT that was "critical thinking" to her. Yet in Jiayi's description (more details in the in-depth case analysis chapter), it seemed evident that what she learned from her practice of the "critical reading" section essentially entailed the ability to quickly comprehend the central thesis and logical structure of the argument within a piece of reading. By contrast, it was largely through her preparation of the "writing" section—for which she often brainstormed ideas and supporting evidence with a friend—that she gained an appreciation for broadening her mind and understanding different perspectives and ways of reasoning. The irony here perhaps should not be missed: while the SAT writing section was not called "critical writing" as "critical reading" was at the time, the more open-ended writing format indirectly provided an opportunity for Jiayi and her friend, through their own effort or discussions, to actually gain a deeper sense of critical thinking beyond the mechanical level of analyzing and constructing logical and evidence-based arguments.

In short, it may be argued that given the participants' varied responses, the SAT seems to highlight the importance of reading and writing argumentation in a logical and evidence-based manner, which can be something new, refreshing, and/or challenging for students who have not

been exposed to any form of critical thinking. However, when the mechanical aspects of critical thinking are practiced primarily for speed and efficiency, as manifested in the multiple-choice or "find the correct answer" format of the "critical reading" section, it became almost antithetical, as numerous participants pointed out, to the spirit of critical thinking that seeks to question, investigate, and problematize, before arriving at a well-considered and more nuanced position of one's own.

(3) A case of exception

While most of the students who have attended non-traditional high school in China or some forms of high school in the U.S. may have been exposed to the concept of "critical thinking" through formal education and/or the SAT, direct instruction or indirect fostering of critical thinking was often limited and perfunctory in these students' experiences. Audrey's case was an exception, however, because throughout her high school education, she had opportunities to constantly practice critical thinking both within and outside of classes.

Audrey's high school was unusual in the sense that it was a small boarding school in China that took "a Chinese/Confucian concept and adopted it into a foreign educational system." That is, the school promoted, mostly in name or form, the Confucian educational concept of the six arts[250] but actually taught, in content, the British A-level curriculum and "the diversity of Western education" (e.g., a wide range extracurricular activities from student government to drama club)

[250] The Confucian six arts consist of rites, music, archery, chariot racing, calligraphy and mathematics. According to Audrey, the concept of the six arts proposed by Confucius was used to categorize and promote a variety of courses and extracurricular activities that were, however, largely drawn from Western education (e.g., singing, dancing, drama, student government, and MUN—Model United Nation).

that would prepare the students for the goal of studying at elite universities abroad. Spoken Chinese, for example, was only allowed in a few elective courses on the Chinese language arts; English had to be spoken both inside and outside of the classrooms. In explaining how the school had strengthened her critical thinking abilities, Audrey wrote the following in her online response:

> [When] I moved on to my international high school where for the first time I constantly needed to provided answers to give an argument and evaluate its feasibility almost in all subjects, and surprisingly in science too. I also joined the MUN club where we serve as a delegate of an assigned country and speak on behalf of its interests. All these experiences have taught to different sides of the same story.

In other words, critical thinking was fostered in all aspects of the school, from formal curriculum to informal extracurricular activities. In the academic domain, Audrey was encouraged to think critically not only in the humanities and social science courses but also in the sciences, as she described: “we have labs, but it’s not like we were just going through the procedures; we had to talk about how we did it and we shared tips [with one another].” In the non-academic/ extracurricular domain, Audrey said that due to the school being small, there were “numerous opportunities to be leaders” and a limited amount of freedom—within an otherwise complex and strict British school hierarchy run by an “autocratic” Irish/British headmaster—for students to exercise their agency. In both obvious and subtle ways, therefore, Audrey felt that she was encouraged to express her opinions, formulate ideas, and respond to open-ended questions—all of which strengthened her critical thinking development.

What may be concluded from Audrey’s case as an exception to the way critical thinking has typically been introduced or promoted, if at all, at the high school level is the following: critical thinking can be effectively fostered among high school students, when schools actively

and intentionally incorporate appropriate pedagogical elements—e.g., asking open-ended questions, giving students opportunities to formulate their own ideas, and providing smaller classes for classroom discussion—throughout its formal curricular and informal extracurricular activities. Mere reference to the concept of "critical thinking" or perfunctory explanation (e.g., by instructors) or assessment (e.g., the SAT) misses educational opportunities by which critical thinking as a largely helpful and important tool can be better developed.

Before we move on to analyze the pattern of those participants who marked their initial exposure to critical thinking in college, it may be interesting to note that among the participants who described or demonstrated a self-initiated process of critical thinking development, most of them were early developers—students who began exhibiting critical thinking in middle school or earlier. Very few (notably Arielle, who went to a regular high school in China) claimed of having developed critical thinking on their own in high school. This small but intriguing phenomenon might be, at least in part, contributed to by the packed schedule and events in high school. Participants who went to high schools—traditional or alternative—in China, frequently described having had more time before high school for extracurricular reading and fun. Such freedom and time to read and think in their earlier years, along with a maturing sense of the self and curiosity starting in their early teens (around late elementary school), might have contributed to the greater number of self-initiated critical thinkers before rather than in high school.

In addition, other cases also seem to support the above claim: e.g., Ray's observation of himself thinking more after he moved to the U.S. for high school (for the last two years) when he suddenly had "an abundance of time"; Alex's account (as analyzed in the group analysis chapter)

about his venturing into existential questions at the end of his second year in college when he no longer found his academic major as demanding and had more time to explore other courses and books. In other words, all these cases seem to suggest the difference that informal learning and even passive environmental factors, such as free time, can make in fostering students' critical thinking.

3. College in the U.S., Varied Institutional Approaches

Given the patterns analyzed above, the majority of participants had, prior to college in the U.S., either developed some aspects of what they would later identify as critical thinking early on or had some exposure to it through high school English literature/writing courses or the SAT. Therefore, only a few participants (about 3) indicated that their first exposure to critical thinking—both as a concept and a way of thinking—took place in college. These "late" starters either did not take the SAT as community college transfer students and/or went to regular high schools in China where critical thinking was not typically taught or mentioned. [251]

For example, Tim described the following about his learning process of critical thinking at a community college:

> I first heard this concept in community college, in a required writing course that was titled something like Critical Thinking [&] Writing. But I couldn't understand what critical thinking was at all, even after translating it into Chinese. It just felt so abstract, as if one is to talk about Platonic love without having actually read [the original text]—how would you know what that Platonic love might be? So the same thing with critical thinking: If you haven't read relevant texts that exemplify it, you couldn't possibly understand what critical thinking actually is.... It wasn't until I had read a lot, looking out for writings that

[251] One of these students, who went to a regular Chinese high school and took the SAT, did not think the test evaluated critical thinking; therefore, she marked college as the starting point of her exposure to the concept and the way of thinking critically.

> demonstrated critical thinking, including news analysis that presented more objective or balanced views… [in other words,] I think it's something that takes practice.

Tim's account of his learning process indicates that understanding critical thinking is a process that takes time and practice – a mere introduction or a course taught in a mechanical or perfunctory way may not provide students with sufficient opportunities to grasp and appreciate critical thinking for its relevance in their academic and everyday life. In addition, the repeated practice in this gradual learning process also requires both resources—e.g., writings or other examples that exemplify what it means to think critically and express it in various forms—*and* students' initiatives—i.e., an openness to and readiness for exploring a particular way of thinking.

These elements of learning critical thinking as captured in Tim's case seems to explain why some students (e.g., Alex, Erick, and Nathan) who had exposure to the concept of "critical thinking" prior to college still found a significant change or growth in the way they understood or appreciated the actual thinking and its applications in college. In addition, among the students who had developed aspects of critical thinking earlier, most of them also found additional growth in college with respect to their abilities to think critically, at least in their respective disciplinary studies. Therefore, it may be summarized that for most participants who had different levels of exposure to critical thinking prior to college, higher education still played a substantial role—whether directly or indirectly— in furthering their critical thinking development.

More interestingly, as more than half of the participants were transfer students, either coming from other research universities (3 students) or community colleges (9 students), their experience with learning critical thinking at these different tertiary institutions also differed. Overall, there seems to be a significant difference between the research universities and

community colleges in terms of how they approached the "teaching" of critical thinking. The following pages will explicate these institutional differences vis-à-vis critical thinking education.

(1) Community college: explicit instruction

Among the nine community college transfer students, 7 students attended community colleges within a state where a required course on critical thinking has been mandated by the State for all state university graduates. This mandate also means that for community college students who are interested in transferring to state universities or public research universities in the same state, such as WCRU—they would need to take a course on critical thinking. Such required critical thinking courses may be taught in several departments, most often in English (e.g., "Critical Thinking & Arguments") or Philosophy (e.g. "Introduction to Critical Thinking" or "Logic and Critical Thinking"). As a result, all 7 of these students had taken at least one course on critical thinking, either taught by an English or a Philosophy professor. By contrast, the other 2 transfer students attended community colleges in another state, where the concept "critical thinking," according to these students' descriptions, was frequently mentioned by professors or at workshops, but no specific course on critical thinking seemed to have been offered or required of them to take.[252]

Given these participants' descriptions, the importance of learning to think critically was clearly emphasized among all the community colleges that they had attended; moreover, an

[252] Perhaps as a result of a lack of provision or requirement for a designated course on critical thinking, the lack of clarity about what critical thinking entails seems to be even more pronounced in these two students from another State. As Cindy's reflected: "I am not so sure about the definition of critical thinking is, so I would consider anything that is not examination oriented as critical thinking."

intentional, state-wide effort has been made by community colleges within some states to explicitly teach critical thinking via designated courses. Yet in spite of such policy and curricular effort, the explicitness and quality of instructions on critical thinking seemed to vary by individual courses and community colleges.

Tim's account quoted above, for example, seems to suggest a weaker version of this instructional attempt to explicitly foster critical thinking. Although a number of other students who have also taken an English course with a focus on critical thinking did not express similar confusion about how to write critically (perhaps in part due to their earlier exposure to or development of critical thinking prior to college; e.g., Erick and Antonia), their descriptions of the course experiences or what they had learned from the courses vis-à-vis critical thinking were also brief and seemingly inconsequential. Antonia, for instance, wrote the following about her exposure to critical thinking as a required course at a community college: "[my] English professor [said] we need to show our critical thinking in our essays." In our interviews, even though we had touched upon the topic of critical thinking in the academic domains numerous times from various angles, no further details was provided by Antonia on how that course might have contributed to her understanding of critical thinking. As her conception of critical thinking—i.e., "be skeptical" or "be conscious about ourselves and [our] surroundings" (which also entails for her "questioning and considering claims made by others as well as oneself")—aligned closely with the kind of criticality she exhibited since childhood (details analyzed in the group analysis chapter), it did not seem that the English or writing course on critical thinking had left a deep impression on her or her critical thinking development.

By contrast, a number of students who went to a particular community college where the cultivation of critical thinking was perhaps more thoughtfully introduced in a series of three introductory courses—ranging from communication, to writing, to philosophy—were able to provide more details about the learning process and benefits. For example, Eleanor, who also had demonstrated an early development of critical thinking and later exposure to the concept in college in China (for a brief period of time), wrote enthusiastically of what she had learned from a critical thinking emphasized writing course she had taken at the community college: "I learned how to be an active agent in the world and how to think independently from the information-overloaded world. Continuously deducting reasons and significance." Similarly, Nathan identified an English course as a "pivotal point" in his critical thinking development: "In my first semester at the community college my English professor organized his class like a seminar. He stated that he learned it from Socrates, letting students ask questions and think to solve the questions by themselves. Instructors only guided the whole discussion without giving a certain answer." In addition, Nathan and a few others from the same community college also mentioned an introductory philosophy course on critical thinking, where they learned to identify logical fallacies for improving thinking and writing. These cases seem to suggest that depending on the quality of the instruction, designated courses on critical thinking at community colleges can have significant impact on students' critical thinking development.

(2) Research university: implicit instruction

In contrast to community colleges where the concept of "critical thinking" is frequently emphasized and designated courses may be required of all students who intend to transfer to

more advanced tertiary institutions, such efforts to cultivate critical thinking at research universities like WCRU seem to be implicit and more subdued—as Cindy observed: "everyone here [WCRU] seems to assume that you already have it [critical thinking]."[253]

For community college transfer students, the change of institutional approaches was conspicuous, as evident in Eleanor's following reflection:

> I actually feel that critical thinking is being more frequently mentioned and applied in courses like English composition and history classes that I took at the community college. Once I've transferred to here [as a psychology major], I didn't hear the term being mentioned as much. In classes [at WCRU], instructors are focused on course content and tests. I feel like the instructors' expectation for undergraduate education is for students to just complete the course or degree… rather than having you think critically about the content material or something like that.

Echoing Eleanor's experience, Hanna also observed a lesser emphasis on critical thinking in classes at the research university. However, with a propensity to understand or justify things as they are rather than challenging the status quo from her perspective, Hanna simply interpreted the change as a matter of research professors simply had more knowledge to transmit to the students: "it seems as though instructors [at WCRU] have a lot of research experiences, so there are a lot of material to be covered within a short period of time; therefore, they tend to lecture more and provide us with less time to interact and discuss [our ideas/questions]."

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[253] Perhaps for conclusion chapter: Cindy's observation shed light on a likely problem of "elitist" assumption and bias. That is, whereas at community colleges where "critical thinking" is frequently mentioned and taught, the assumption is that students don't have critical thinking; by contrast, at the research universities, the assumptions is that students already do. Such sweeping assumption begs the question: to what extent are these assumptions warranted? An answer to this question may depend in part on how critical thinking is defined—i.e., in a narrow academic/disciplinary knowledge sense or in a broader sense as later feminist and postmodernist theorists proposed. There seems to be an academic hierarchy when it comes to the kind of critical thinking that is being fostered, with an increasingly narrower, disciplinary version being fostered within the more elite universities. The legitimacy of such a practice should be discussed further.

The reduced interactions in class with professors and peers, which could spark critical discussions and thoughts, appeared to be a theme often mentioned by these community college transfer students. They identified larger class sizes, a faster learning pace, and less time or energy to engage with conversations outside of the challenging academic work environment as contributing factors to the lack of communicative interaction that they had often enjoyed in community colleges. As Ray fondly recalled of the informal learning opportunities that accompanied a diverse student population at the community college:

> At CC [community college], there were students who came from the very bottom of society…while some were there to study for money [better financial future or job], others, in their 60s or a wide age range, for their passion of learning… So I gained different appreciation for things at the community college than at [WCRU].

In comparison, a number of transfer students noted a more homogeneous and "elitist" environment at the research university, which consisted of a highly-selective group of students are super smart, competitive, and hardworking. As Ray commented, "at [WCRU], everyone is an elite, good academically," or as Antonia explained, "students here may not necessarily know why they need to study hard, but they know it's very important, so they study really hard."

At the same time, part of this elitism, as apparent to transfer students also, is also manifested in the great abundance of resources and programs at the WCRU for helping students advance their academics. As Hanna added: "since [WCRU] is a research university, it puts more emphasis on students having research experiences; by contrast, research is not emphasized as much at the community college—course knowledge focuses on research results but not how to do research." Eleanor, who had more extensive research experiences at WCRU, also agreed that the university supports student doing research and thought it "can be a form of critical thinking." However, Eleanor also noted from her experience that the actual research progress entailed

largely following the protocol: “they teach you some research methods, APA [research paper] format…for the purpose of having students pass the degree requirement rather than fostering critical thinking or a research spirit for independent research.” Eleanor’s repeated descriptions of being constantly rushed to complete and move on in a series of well-designed academic programs or requirement seems to suggest a kind of educational pipeline at the research university that provided more of the mechanism, such as research opportunities, for efficient knowledge and degree production rather than the support for students to pause, reflect, and explore questions that might be important for them—in the way that an education that prioritizes critical thinking ideally would. As such, as a research university, WCRU is capable of fostering critical thinking in an implicit way through research; however, while the university may do a good job in providing the opportunities in form, it misses the opportunities in content.

This lack of emphasis on critical thinking, at least of a particular kind, which Eleanor identified as a prevalent feature in her courses, was also noted in the responses of numerous participants, particularly of the STEM fields. For example, Alex could not recall the concept “critical thinking” being mentioned in his courses, particularly those in his major. Both Claire and Faye noted a reduction in their use of critical thinking since college, as their focus shifts to their STEM majors. However, as Claire conceded, if logical thinking, which is frequently used in math (and other STEM fields) can be called “a kind of critical thinking,” then she felt she had been very well trained in that respect in college. In addition to deductive logic, students from the applied STEM fields, such as Ray and Alex, also mentioned “comprehensive thinking”—a kind of inductive logic that considers multiple aspects of a problem or design—as a kind of critical thinking prominent in their engineering training. In other words, while STEM students typically receive

rigorous training in their respective fields, such training typically transmits the established logic of disciplinary methods and concepts rather than, at the same time, unpacking the conceptual tensions and methodological uncertainties latent within the scientific endeavor.

After a while, such discipline-specific, logic-centered critical thinking fostered in the STEM fields does not seem to satisfy the minds of students who are or who became concerned with larger questions related to or extend from scientific knowledge acquisition or production. For example, Alex wondered *what* (which also implies the question of *why or meaning) he* should make as a future engineer—a question not discussed in his major—when he felt he was equipped with a lot of knowledge and skills on *how* to make things. For that question—one that is open-ended, complex, and calls for critical thinking—he was left on his own. While Alex, with some luck (as discussed in the group analysis chapter) was able to address the existential question fairly quickly for himself, it is likely that others may not have found it so easy, as evidenced in Jiayi's case (as discussed in the in-depth case analysis chapter).

Similarly, the lack of critical approach to methodological exploration and conceptual tensions within a given field can also be found in Hill's case, where his cross-cultural background presented additional questions for him as a psychology major—a field that borders between science and the social sciences:

> I would sometimes have this feeling that perhaps they [academics] are not being comprehensive enough, especially in psychology. While all of our activities are shaped by our cultures or memories in various ways, psychology aims to be objective, as if one could possible escape from all of that. Therefore, sometimes I notice that some of their general approaches or models [of psychology] may actually be imbued with certain values, such as independence, individual freedom; as a result, they would also use certain concepts that sound rather derogatory, like "hierarchy" and "kinship," to describe the other. So when applying these concepts, say in psychotherapy, the therapists would invariably lead patients to certain set of values. All the psychological literature seems to indicate that these values [i.e., individual freedom and independence] are healthier for people, so I

> haven't found evidence or argument that can counterargue that…. However, I would wonder—though without established theoretical backup—whether the reason why so many people in the U.S. seek psychotherapists for help is because there is a relatively lack of care and altruism among people here, due to an overemphasis on the value of independence or personal boundary. I also wonder, whether in China—even though its awareness to mental health is fairly low—the very fact of its more closely-knitted social life might actually provide individuals with more sustainable energy.

Drawing upon his experience growing up in another culture, Hill questioned the value assumptions embedded in the dominant concepts of psychology in the West, even though by academic training and research evidence, he could not find reasons to disagree. His private doubts raise questions about the possibility of and the necessity for a more open and critical approach to the methodological and conceptual issues within psychology, especially as the disciplinary knowledge has global consequence on how mental health is generally understood and treated. In other words, while psychology or even psychotherapy may have its own rigorous disciplinary standard or form of critical thinking which it imparts, such critical thinking may be called "weak" critical thinking, borrowing the term from Paul (1982), as much of its methodological, conceptual, and value assumptions may have been left unexamined or undiscussed, at least with the undergraduate students.

Judging from participants' course experiences, the social sciences and humanities in general seem to do a better in terms of fostering critical thinking, though the effective or clarity of such cultivation also depends on individual courses and disciplines. One discipline, among those studied by the participants, that did teach its discipline-specific critical thinking in a self-reflective or critical way was history. According to Nathan, a new course on methodology in the history department was just beginning to be offered to all history undergraduate majors at WCRU as a requirement. The course adopted a theoretical and philosophical approach by asking

students to consider fundamental questions, such as "what is history, who do we study, how and why do we study." To address the questions, the course traced how history as a discipline had begun and how it evolved over different periods. Such an overview of the disciplinary history and methodological changes within the field provided Nathan with a pivotal foundation for doing future historical research: "I used to think that doing history meant simply reading historical documents; now I realize that there are many approaches to doing history—some historians don't necessarily reply only on documents but also on a general idea, upon which they build a system of [historical] analysis." From the course, Nathan gained a clearer understanding of the methodological tensions and theoretical influence on the construction of history as a field of knowledge, helping him to think and writing more critically as a future historian.

Granted, history may not be the only field at WCRU that practiced a "strong" disciplinary critical thinking, as participants had backgrounds in a limited number of academic majors; none, for example, was majoring in English or Comparative Literature—disciplines that are likely to have been critical of its own disciplinary method and knowledge, especially in the recent decades . However, such disciplinary criticality may be rare in general in academia, and the fact that such methodology course had just been launched not long ago in history seems to suggest a generally limited level of critical thinking that has been fostered in an implicit, discipline-specific way.

Granted also, the cultivation of critical thinking in higher education, especially at the undergraduate level, does not have to manifest in one form or at the highest possible methodological level. A number of students who were either social science and humanities majors or have taken courses in these non-STEM fields have either demonstrated or explained how the assignments, projects, and knowledge from the course have facilitated their critical

thinking development. For example, Nathan said that even though his history professors have never explicitly used the concept "critical thinking," the way the professor asked him to consider historical events from different perspectives, starting with "what if," embodied the practice of critical thinking. "I came to realize," Nathan added, "that critical thinking was being used all the time, but now cloaked with a layer of historical knowledge" and both historical knowledge and critical thinking skills are necessary for good historical thinking. In addition, as already discussed in details in the group analysis chapter, Alex expanded his critical thinking and concern as a result of the Anthropology courses he began to take; Joanna described her initiation to critical thinking through the sociopolitical and intrapersonal knowledge gained from her gender studies course and general writing course. In other words, critical thinking can also be stimulated by or fostered implicitly through certain pedagogical practices (e.g., asking students to consider another perspective) and the transmission of certain knowledge—or what may be called "the esoteric knowledge" by Basil Bernstein—that is the very product of critical thinking, generated from a given academic discipline or beyond.

In short, given participants' accounts (3 were transfer students from other research universities similar to WCRU), research universities such as WCRU seem to adopt an implicit and perhaps less organized institutional approach to the teaching of critical thinking. That is, the cultivation of critical thinking—if there had been any intentional and strategic planning on this as an important educational goal—was largely left for individual disciplines or programs (e.g., the writing program that is responsible for require writing courses) to decide. Given the way most disciplines seem to be taught—e.g., without a course reflecting on the disciplinary methodology and history or without mentioning or explaining how critical thinking is manifested in the

discipline—the assumption seemed to be that disciplinary training and knowledge would automatically suffice to train students to think critically within the discipline and beyond. The result of such assumptions and implicit teaching, as seen in the participants' responses, is that critical thinking as participants understood it may be taught sufficiently well in some disciplines but narrowly, if at all, in others.

II. Perceptions of Critical Thinking

This section addresses the second part of the first research question proposed by the dissertation: *What are transnational Chinese students' perceptions of critical thinking?* To address this part of the research question, I analyzed not only what the participants said or described about "critical thinking" but also how they used it in practice across domains and socio-cultural contexts. Therefore, the following pages on how transnational Chinese student perceive critical thinking consist three parts: (1) how they describe "critical thinking;" (2) what can be further understood about their conception of critical thinking through the ways they apply it; (3) what they think about critical thinking as something that is transferrable and universal, as typically assumed in the literature or by proponents of critical thinking.

1. Participants' Conceptions of Critical Thinking: Different Emphasis

Before delving into students' descriptions of critical thinking, it may be helpful to recall the following summary from the theoretical debates on critical thinking as detailed in the literature review chapter: the philosophical lineage of critical thinking as a form of education in

the West has been a long one, as evident in the works of Socrates, Kant, and Dewey; the more recent movement of critical thinking since the ‘70s has also evolved over several stages. During these stages, the central questions of *what critical thinking is* and *how to teach it* have been intensely debated, researched, and expanded by later theorists and educators coming from various disciplinary and intellectual backgrounds (e.g. ranging from psychology to philosophy, from analytical philosophy/informal logic to feminism and postmodernism). However, in spite of the diversity, nuances and changes within the central debate, by and large the conception and pedagogy of critical thinking has been dominated by an informal-logic and argument-centered approach. This dominant conception and approach to critical thinking is consistently exemplified in relevant educational policies that promotes it as an essential educational goal (e.g. California Execute Order 338 or mandate on taking critical thinking as a required course for all California State University graduates), college-level courses that explicitly teaches it (e.g., titled “Logic and Critical Thinking” or “Argumentative Writing and Critical Thinking”), and the textbooks that provide pedagogical instructions (Cottrell, 2015; Fisher, 1999; Lau, 2001). Following this approach, the skill or ability components of critical thinking are highlighted: e.g., identify logical fallacies, evaluate and construct logical arguments, use warranted supporting evidence, and consider alternatives or counterevidence.

In addition, theorists also later added correlating dispositions of critical thinking to the overall conception: e.g., open-mindedness, fairmindedness or impartiality to evidence, and willingness to doubt or suspend judgment. However, in comparison to the skill elements of critical thinking for which concrete curriculum, pedagogy, and assessment tools have been built to teach and evaluate it, the dispositional aspects of critical thinking did not receive as much

attention in the literature. This is in part because dispositions are thought to be harder to evaluate in a time and cost-efficient way that skills can be (Ennis, 2011; Hitchcock, 2018);[254] in an accountability and data-driven age, measurable skills are invariably prioritized over the less quantifiable dispositions. The focus on skills has also been justified by some educators who believed, such as Fisher (2001) and the theorists he cited (e.g., Glaser and others), that the acquisition of critical thinking skills would naturally lead to the development of critical thinking dispositions.[255]

Yet looking at participants' descriptions of critical thinking, what immediately stands out is their emphasis on its dispositional aspect, or perhaps more appropriately—as some participants called it—"the critical thinking spirit" or "attitude." There are three distinct yet interrelated critical thinking attitudes frequently mentioned by the participants; as their conceptions of critical thinking have been extensively explored in the earlier chapters, I will describe these highlighted attitudes in a summary form as follows:

First, perhaps the most often mentioned characteristics of critical thinking by the participants was the disposition of being skeptical or ready to question things beyond how they might appear at first. For example, Tim explained that thinking critically means that "not believe simply whatever one sees in the news or social media, but make an effort to see what might be behind"—a given claim, rationale, or picture. Similarly, Joanna understood critical thinking to mean "not take things for granted" but actively examine them for oneself and challenge them

[254] Double-check references

[255] The rationale, as Fisher (2001) summarized: "Thus, they [some critical thinking theorists and educators, like Glaser] argue, you cannot fail to see that this skill is wroth using whenever significant questions of credibility arise; it is valuable and it will pay you to adopt the habit of using it, to be dispose to use it. It is hard to understand someone who develops these thinking skills and then does not bother to use them quite generally" (p. 12).

when necessary, even if they are from a source of authority. Such skeptical and questioning attitude, as Antonia, Hill, and others added, would be directed not only toward claims made by others but also by oneself— "to consider whether or not what I think is necessarily right or true."

Second, numerous students also highlighted the importance of thinking independently as an essential characteristic of critical thinking that is "related"—as Joanna pointed out—to the skeptical and questioning spirit. For example, Arielle explained the importance of independent thinking in the following way: "no matter how persuasive the others' opinions might be, one must think it through by oneself—not based on the belief that one's own thinking is the best but by the necessity that one must exercise one's thinking capacity…or one won't be able to take responsibility for oneself." Similarly, Tim also emphasized on the benefit of being able to think independently: "so I won't do things blindly, following whatever others consider as good but to establish my own understanding" which would play an important role in making the right decisions for oneself. The connection between skepticism and independent thinking as two dispositional components of critical thinking is indeed close, as evident in participants' descriptions. If being skeptical can be perceived as a more cognitive attitude toward knowledge claims (or what one hears, sees, and receives), then being independent arguably represents an intrapersonal attitude about how one perceives and carries oneself in the world—as an individual with certain autonomy, self-determination, and agency.

Third, "being open" to others and to multiple perspectives is also a frequently mentioned attitude by the study participants. For example, Hanna described how this aspect of critical thinking is frequently applied in her everyday life: "I would first listen to different perspectives, to better understand why things happen in the way they did, and then draw a conclusion." In

addition to finding such open-mindedness helpful in gaining the necessary objectivity for decision-making, Hanna also found the process enjoyable: “Once I learned to think critically, “the world suddenly feels much bigger; as a result, I no longer feel what I think is necessarily right.” For Ray, who was more sensitive to the potential tension between opposing perspectives, nevertheless, concluded similarly about the usefulness of being open to the other, as he said: “By discussing a problem from two opposite sides, people can perceive the problem better and achieve a better intermediate solution(if possible).” By “intermediate solution,” Ray meant a more comprehensive understanding or synthesis that is beyond the opposite, initial viewpoints.

In other words, there is a truth-seeking element within the open-minded attitude and consideration of multiple perspectives. As Hill added, “it’s not enough to just consider, but we need to actively seek out alternatives…and others’ points of view,” stating that “because we invariably have positions of our own, we need the other” in order to see things clearly beyond our preexisting opinions or biases. In short, it may be argued that if being skeptical expresses a more negative/deconstructive element of critical thinking and being independent suggests a more self-focused and potentially self-isolating dimension to the practice of critical thinking, then being open to the other and their perspectives seems to provide a necessary interpersonal dimension that balances the other two, cognitive and intrapersonal dimensions, of critical thinking. Arguably, together, these different attitudinal dimensions stood out for the participants about critical thinking seem to explain why for many, critical thinking played a largely positive and important role in shaping the numerous aspects of their academic and everyday life—e.g., from writing academic papers, to making decisions, and to (re)define their “own position in life” and relationships with others (as detailed in the previous chapters).

It may be worth noting that in spite of the emphasis on logic in critical thinking literature or the dominant logic and argument-center approach to teaching of critical thinking, most of the participants did not seem to consider logic—or the evaluation and construction of logical arguments—as the defining feature of critical thinking in their practices. That is, while no participant would contest that critical thinking is a form of rational thinking that is also inherently logical, logic appears, as Claire pointed out, to be "a basic component" rather than the most characteristic or distinguish component of critical thinking. Among the half of the participant population who mentioned logic or logical thinking in their descriptions of critical thinking, only a handful considered logic as an essential feature of critical thinking, while another handful actually questioned the absolute importance of logical thinking as typically emphasized in the teaching of critical thinking in higher education. For example, Nathan reflected on his contentious interactions with others when he first learned to think critically in college: "I would think since what I think is logical, why should I listen to you." Over time, however, he began to see that "rational thinking, including logic, cannot solve all the problems," such as maintaining congenial social relations, especially in cultural contexts that operate on a different set of norms and common-sense "logic."

It may be thus argued that given the participants' descriptions, critical thinking is more than logic, or what some educators have called "monological" thinking—i.e., "reasoning exclusively within one point of view or frame of reference" (Paul & Elder, 2013, p. 410). This does not mean that the formal training in critical thinking as informal logic or logical argumentation is not important or useful. Even for participants who questioned the existing practices of critical thinking in higher education (e.g., Claire, Tim, among others as detailed in the previous chapters),

there was overall value in being able to express oneself in a more systematic, logical, and evidence-based way. However, it also seemed to have been apparent in their own practices and experiences, critical thinking has to be able to deal with "multilogical problems" that are situated in historical and material contexts and that consist of concerns and rationales or "logics" of the other. In other words, for problem solving, especially in the world of everyday life beyond academia, critical thinking cannot be carried out by simply following the logic of one's own point of view or frame of reference; its operation may require both more complexity and flexibility.

2. Participants' Applications of Critical Thinking: Highlighted Domain & Additional Elements

While what constitutes critical thinking from these transnational Chinese students' perspectives can be gathered directly from their descriptions or definitions, it can also be discerned indirectly from their applications of critical thinking. Even though most of these participants were initially introduced to the concept "critical thinking" through formal education as something important in the academic domain, a large proportion of them seemed to use critical thinking more frequently outside of academia, in the domain of everyday life and the sociopolitical domain. For example, to the question—*can you describe situations where you've thought critically?*—in the initial online questionnaire, most of students (i.e., all but four) mentioned situations of intrapersonal, interpersonal, and sociopolitical nature. For example, decisioning what major to choose, dealing with relationships in school or at home, taking or providing constructive criticism, and understanding the U.S. and China as two seemingly opposite sociopolitical systems.

This greater usage of critical thinking outside of the academic domain was later confirmed by most students in the interviews. For example, for students who developed critical thinking prior to high school (about 1/3 of the participants), either by their own initiatives or by parental guidance, thinking critically was an integrated component in their everyday life. In Claire's case, for instance, even though she learned a more "systematic" approach to critical thinking through an AP English course (as detailed in the in-depth analysis chapter), occasions to practice it in formal education was sparse; by contrast, in her daily life, especially in the first few years in the U.S., she was "constantly bombarded with ideas that were different from [her] own." As a result, she had to examine closely her belief system in light of the conflicting ways of thinking and being she experienced as a transnational straddling two geopolitical and sociocultural spaces. In addition, many other students, particularly STEM majors in Groups I and II, either described numerous instances where they applied critical thinking in the personal domain (as detailed in the group analysis chapter) or commented explicitly on using critical thinking more often outside of the academic domain, where critical thinking as manifested in STEM fields is limited primarily to logical thinking.

It is also worth noting that in describing their practice of critical thinking in the domain of everyday life, participants often highlighted additional elements in their critical thinking application that seem to contrast with how critical thinking is typically characterized and fostered in the academic domain. As these additional elements—perhaps particular to the domain of everyday life and/or to this cross-cultural student population—have been explored in detail throughout the individual case and group analyses in the previous chapters, I will describe them below in a summary form:

First, critical thinking in the personal domain has been described by participants as a "more involved" process. This is not only because the problems in everyday life are often "multilogic" or "more complex," but also because the personal stakes for these problems are higher. For example, in deciding what major to choose in college or what to do with one's major—a decision that may generate long-term consequences that differ from receiving a grade for a particular assignment—a number of students, such as Dio and Alex, explored much larger questions about life, happiness, and who they want to be. Similarly, in redefining personal boundaries or justifying personal choices—especially when such choices contradict with the Chinese cultural norm they had imbibed or their parents continued to enforce—many participants had to reevaluate their belief systems, draw upon their past and current experiences, and discover or strengthen their commitment to who they are as individuals and their unique "path[s] in life." In short, given participants' practices, critical thinking in the personal domain or on issues of intrapersonal dimension is a deeply personal and involved process, entailing self-knowledge, self-examination, and sometimes a leap of faith or trust in things that are beyond the obvious and the rational—e.g., one's inner voice, intuition, and/or religious beliefs (as detailed in the group analysis chapter, particularly of Group I students).

Second, the "more involved" critical thinking process in everyday life may be connected to another additional element often mentioned by participants in their critical thinking application and development—"emotion." Even though emotion is not typically espoused—in fact, largely severed—from the conception and practice of critical thinking in the academic domain, it seems to be a particularly important and rich concept for participants. For example, as detailed in the group analysis chapter, Arielle discussed how, on the one hand, strong

emotions can skew one's rational or critical judgment; on the other hand, one would also need a certain amount of emotion or a feeling "of being moved somehow" in order to initiate thinking about an experience. In addition, Arielle used the term "emotional intelligence" and described it as an essential part of critical thinking. That is, a personal who thinks critically in daily life would invariably demonstrate emotional intelligence, entailing a "very calm" disposition with which one can consider information or matters fairly and thoroughly *and* sensitivity with which one can readily perceive experiences and those in the surrounding environment. This state of calmness as a characteristic feature for a critical thinker was mentioned by several other participants (e.g., Hanna and Cindy) as well.

In other instances, such as in Erick and Alex's cases, the desire to reach that state of equanimity or, at least, to better understand one's emotional disturbances and anxiety was a strong driving force that led them to explore courses in ethics or anthropology. Such exposure to knowledge and perspectives that typically problematize our established ideas or ideals and unpack existing social norms or practices by situating them in their historical and sociocultural contexts, Erick and Alex's abilities to think critically were also strengthened. Lastly, from a different angle, Audrey critiqued the lack of incorporation of feeling or emotional consideration, such as empathy, in problem solving of complex policy issues or global crises. Even though Audrey was cognizant of the potential complication and challenge in adding another dimension or element to the existing practice of critical thinking, she believed that critical thinking should be practiced in a more inclusive and empathetic way, rather than "purely based on data and arguments."

Third, participants also frequently mentioned a strong preference for "not imposing one's own idea or position onto others"—however critically examined or right such idea may seem to oneself. Arguably, this additional element in their critical thinking practice in the domain of everyday life is connected to the other two interconnected elements as discussed above—i.e., the undergoing of a "more involved" critical thinking process in which one needs to be attuned to one's own "emotion," harnessing it as an impetus, indication, and/or additional aspect of one's critical thinking. Here, in the third additional element or a non-imposing preference for one's criticality, participants seemed to be suggesting an awareness or sensitivity toward others' emotions as part of a critical thinking process. For example, a number of STEM students (e.g., Ray and Arielle) observed that some people may demonstrate strong critical/logical thinking by their disciplinary standards but they lack emotional intelligence or consideration for others' feelings; as a result, they offend others by expressing their ideas "too directly" or callously. Ray, in particular, as detailed in the group analysis chapter, stressed the importance of not imposing what one believes to be correct onto others in a relentless way. Speaking from his own experience, he believed that by respecting the other's differences and providing them with the necessary space to reflect, they would often turn around on their own. Similarly, Hanna explained that if one speaks in an imposing or dominating way, it might in effect shut others off from expressing themselves; as a result, one might become isolated and ignorant of what others really think.

Perhaps more than any other attitudinal emphasis or additional elements of critical thinking highlighted by the participants, this prevalent preference for not imposing one's idea onto others—along with a demonstrably more reserved, cautious, or selective approach to how,

when, and to whom one expresses one's critical thinking—may be associated with participants' cross-cultural background. As Claire characterized her experience in China: "even though there isn't as much of this notion of being 'politically correct' in China, there is [pressure to be] 'culturally correct'." In other words, there are certain expectations or cultural norms around how one should or should not speak in a highly hierarchical culture, such as the traditional Chinese culture which has continued to shape modern Chinese society. Almost all participants, for example, said that they would not express their divergent opinions or critical ideas assertively, if at all, to the elderly, even when they [the participants] may feel the impulse to defend or speak up for themselves.[256] While many explained their cautious or selective behavior for when and what to express as a matter of practicality—often justifying their position by generalizing that the elderly would not be able to understand or change their minds—the latent social pressure to be "culturally correct" also seemed to be a major reason. Such sociocultural influence may have, by extension, impacted students' preference for not imposing their views or critique onto others—which in itself needs to be open to critical examination. At the same time, this non-imposing principle also seems to point to something universal: the observation that human beings have natural emotional tendencies toward aversion when contradicted and fear when intimidated. Therefore, to maximize collaborative coexistence and minimize retributive hindrance in the long term, it would be necessary to take into account, in one's critical thinking process and expression, the interests and emotions of all involved in a situation.

[256] Such instances seemed to occur more regularly for female participants, for whom winter/summer breaks back to China would often entail scenarios where they receive some unwanted advice or pressure from family members about what they should study, when they should get married, and/or what they should wear in public.

In short, it may be argued that these additional elements, as well as the attitudinal aspects discussed in the earlier section, highlighted by the participants shed light on the intrapersonal and interpersonal dimensions of critical thinking that have been largely ignored in the literature and central debates on critical thinking—e.g., that it is a primarily cognitive concept or a set of cognitive skills. These highlighted intrapersonal and interpersonal aspects—e.g., knowledge of the self, emotional sensitivity to the other, an independent and self-affirming attitude toward the self that also seeks perpetual improvement—also seem to reflect these participants' cross-cultural background or what they have found salient and missing in the practice of critical thinking as fostered in American higher education. Yet, while their conceptions and practices of critical thinking may have culturally-specific roots or elements, the kind of critical thinking that seems to emerge from their perspectives echoes with the alternative vision of critical thinking reconceptualized by feminists and postmodern theorists or advocated by international scholars in the more recent stage of the critical thinking movement. That is, a critical thinking that is more inclusive and open in its forms (e.g., beyond logical argumentations) yet clearer in its moral commitment, as Noddings (2012) articulated, in "letting the other be"[257] and "connect[ing] with others in a way that would make the world demonstrably better" (p. 102-103).

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[257] Noddings's (2012) explanation on the concept may be worth explicating, as she did so in the following: "'Letting be' does not imply mere coexistence. It does not mean neglecting the other or abstaining from any intervention or attempt to persuade. Similarly, confirmation does not imply making excuses for the other or pretending that an ill-motivated act was done with good intentions. On the contrary, both attitudes suggest an understanding of the other that respects that other's ideal. As we intervene, as we attempt to persuade, we help the other to do better *as other*, not as a mere shadow of ourselves. Similarly, when we see evil in the other, we withhold judgment long enough to be sure that the evil is in the other and not a projection of evil in ourselves. Thus the receptivity of caring is directed not only outward but inward as well" (p. 242).

3. Participants' Evaluation of Critical Thinking: Transferability & Universality

(1) Partial Transferability Across Domains

One of the central appeals or arguments for promoting critical thinking in the literature, especially in the informal logic approach to the teaching of critical thinking as a set of general skills, is the idea that it is transferable across disciplines and domains. This idea or assumption about critical thinking is manifested, for example, in the common belief that by learning to think critically via formal education, students would contribute more effectively to the new knowledge economy, problem-solving in life, and/or their future responsibilities as citizens of a democracy. While the transferability of critical thinking across disciplines have been heavily scrutinized or debated during the critical thinking movement (e.g., the opposition from McPeck that argued for the discipline-specific nature of critical thinking in the academic domain), its transferability across domains seems to have received less attention and has been largely assumed. For example, it is common to see in critical thinking textbooks the following rationale or assumption about this later kind of transferability:

> They [critical thinking skills] are undoubtedly valuable skills and, if you can get yourself into the habit of using them, they can greatly increase your understanding in many contexts. The moral is, do not just use them in the critical thinking class, but apply them in your other studies too and in everyday life. You may be surprised to discover how useful they are. (Fisher, 2001, p. 12)

Yet, as evident in above section, on the additional elements highlighted by participants in their applications of critical thinking in everyday life, there may be important differences in how critical thinking can be best applied in different domains. In addition, since the topic of critical thinking transferability across academic disciplines in these students' experiences has been explored to

some extent in the earlier chapters (e.g., in Group II subgroup 1 analysis),[258] the following discussion will focus on how participants viewed the transferability of critical thinking across domains.

In general, participants found commonalities in applying critical thinking across domains, i.e., between academic and personal domains, as reflected in Dio's comment: "I think critical thinking is a general or overall ability; therefore, it should be applicable in all practices." For students (e.g., Tim and Joanna) who were exposed to critical thinking relatively late, in college, they quickly found the ability to think critically—i.e., to question claims rather than take things for granted and to establish their independent position on issues—gained in the academic domain to be significant and beneficial for everyday life, enabling them to make more informed decisions, exercise their agency, and shape the paths right for themselves. For students (e.g., Claire, Eleanor, and Antonia) who started developing critical thinking early and on their own, they also found that the "systematic" training of critical thinking (e.g., evidence-based analysis and argumentative structure) and theories/knowledge formulated through discipline-based critical thinking processes in the academic domain helpful in giving them a "roadmap" and perspectives by which they can better express their own ideas or positions.

[258] In summary, it may be argued that there are different types of logic or combination of inductive and deductive logic in different disciplines; in addition, critical thinking in different disciplines also entail different knowledge content and different standard for what constitutes as warranted evidence in each discipline. At the same time, critical thinking across disciplines is similar in the sense that they all entail a structured, systematic, logical/rational, and evidence-based approach to problem-solving or knowledge construction. While the application of logic may invariably foster a certain level of independence or independent thinking, the spirit of skepticism and the truth-seeking attitude that is ready to challenge established view may be more frequently manifested in the social sciences and humanities, at least at the undergraduate level. Therefore, depending on the participant's major and exposure to different disciplinary courses, their critical thinking practices via/in formal training may vary substantially. In other words, there is a limited overlap and thus transferability of critical thinking across disciplines, particularly across widely different disciplines, such as from math to anthropology.

In addition, many participants pointed out that commonalities between critical thinking in the social sciences/humanities and in everyday life are particularly strong, because problems in these areas are often "ill-defined" and "multilogic"—i.e., that do not lend themselves easily to simple logical solutions or right/wrong answers. Detailed analysis in the earlier chapters on how participants applied critical thinking in the personal domain, such as making important decisions about what to major in in college or what career to pursue in the long term, demonstrated many shared aspects with their critical thinking applications in the academic domain. There was overlap in terms of finding pertinent sources for information gathering, taking into account different perspectives, and evaluating the relevance of a piece of advice for their own situation and needs.

There are, however, also differences noted by the participants with regard to applying critical thinking across domains that seem to suggest otherwise—i.e., that simple transfer across the domains can be problematic. For example, just as the ability to think critically across disciplines entails having sufficient knowledge of those disciplines, critical thinking in everyday life also requires knowledge derived from life experiences. As a number of participants described (Audrey, Claire, and Tim), the relationship between critical thinking and life experience is iterative; that is, just as actual experiences in life provides basic forms of knowledge or evidence for the critical thinking process, the reflective process also improves one's experiences and overall understanding or knowledge about oneself and the world. Therefore, critical thinking in the domain of everyday life can only be developed, to an extent, by actual experiences and knowledge gathered outside of the academic domain. In addition, as Tim pointed out, the appropriate rigor or standard of what constitutes critical thinking across the domain may also

differ in practice: "In everyday life, you can doubt but you don't have to go to such a lengthy extent to figure out whether it's right or wrong…. In academia, even if something is commonsensical, you have to prove that [via extensive research]."

While the standard for critical thinking in the academic domain may be higher or "more rigorous" in a certain way, the additional elements mentioned above also highlight the unique complexities in applying critical thinking in the personal/interpersonal domain. For example, effective critical thinking in everyday life entails a bigger role for self-knowledge and emotional awareness of oneself as well as of others in decision-making and problem-solving in everyday life. Without sufficient emotional intelligence and knowledge of the self and of the other, as expressed by many participants (e.g., Tim, Arielle, Ray, and Hanna), one may not be able to effectively communicate with others and sustain relationships important for one's long-term goals. In other words, as Nathan's reflection of his own experience seems to suggest, simple transfer of critical thinking as a rigorously logical and evidence-based mode of thinking to everyday life situations can be problematic, especially in sociocultural contexts that prescribe to different norms around what is considered to be persuasive reasoning or communication.

In short, participants seemed to find critical thinking as practiced in the academic domain useful and transferable to the domain of everyday life, particularly on intrapersonal matters, because the various components of critical thinking (e.g., logical consistency, warranted evidence, independent conclusion, deeper analysis) helped them make choices, examine values, and become more confident and committed to the paths that seem to be right for themselves. However, transferability of critical thinking from the academic domain to issues of interpersonal and sociopolitical dimensions may be less direct, requiring greater sensitivity to the varying socio-

emotional contexts, inclusivity of interests and logics of the other, and flexibility in how one expresses one's critical thinking in a way that can effectively achieve the intended goal. In other words, to maximize the benefit of transferability of critical thinking across domains, it needs to be done with care and differentiation of the varied nature of problems within and across different domains.

(2) Universality in spirit, cultural specificity in form

Given participants' response to the interview question—*whether critical thinking is universal or culturally specific*—and their accounts of how they develop and apply critical thinking across domains and social contexts, the answer to the universality vs. cultural specificity question seems to point both ways. Critical thinking is arguably universal for the following reasons: First, a significant portion of the participants had started to develop critical thinking early and on their own, which seems to suggest that aspects of critical thinking—e.g., the impulse to doubt and question the status quo, especially in moments of epistemic or moral injustice—are innate and thus universal. Second, students who developed critical thinking later in life, through formal education, commented that once they acquired the associated spirit and the skills, they found critical thinking "commonsensical" or natural. Third, the universality of critical thinking may also be supported by students' responses to the online questions about their critical thinking usage and its significance to them: most participants indicated that they use critical thinking regularly as it played a largely beneficial role in their academic and daily life. Fourth, in response to the interview question about whether or not there is discernable difference between their demonstration of critical thinking vs. that of domestic American students, most participants

stated that they did not find substantial difference. Several participants (e.g., Dio, Claire, Antonia) commented the following: "the difference [in critical thinking abilities or demonstrations] is bigger within individual groups than across groups." In other words, once students learned to think critically, their abilities were not significantly influenced by their specific cultural background but by other, more individualistic characteristics.

Lastly, a number of students (e.g., Tim and Joanna) briefly mentioned the presence of concepts similar to critical thinking in traditional Chinese culture or philosophy, not only in the works of Taoist philosophers (e.g., Zhuangzi's critiques of false binaries and social conventions that inhibit human freedom and enlightenment) but also in the teachings of Confucius and his disciples (e.g., "doctrine of the mean" or 中庸).[259] Many participants also made reference to common Chinese expressions when describing their understanding of critical thinking: e.g., "everything has two [multiple] sides to it" (事情都有两面性), "be understanding and reasonable" (通情达理) or "do not be extreme or too absolute in one's point of view" (想法不能太极端), and "if one listens to both sides, one will be enlightened" (兼听则明). While the exact origin of these popular Chinese proverbs may have been lost, their connection to key concepts in the ancient Chinese philosophy and worldview seems strong.

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[259] 中庸 is both a book—i.e., one of the four Confucian classics or texts—and a key concept in Confucian thought. According to the explanation in Britannica (2016): "The two Chinese characters *zhongyong* (often translated "doctrine of the mean") express a Confucian ideal that is so broad and so all-embracing as to encompass virtually every relationship and every activity of human life. In practice, *zhongyong* means countless things: moderation, rectitude, objectivity, sincerity, honesty, truthfulness, propriety, equilibrium, and lack of prejudice. For example, a friend should be neither too close nor too remote. Neither in grief nor in joy should one be excessive, for unregulated happiness can be as harmful as uncontrolled sorrow. Ideally, one must adhere unswervingly to the mean, or centre course, at all times and in every situation..." [Citation: Britannica, T. Editors of Encyclopaedia (2016, February 15). *Zhongyong*. *Encyclopedia Britannica*. https://www.britannica.com/topic/Zhongyong]

For example, one idea frequently mentioned by participants—about not being too extreme or absolute in one's point view—seems to convey the ideal of balance, harmony, and moderation embodied in key Chinese concepts, such as the "doctrine of the mean" or 中庸. Participants used this Chinese phrase to explain critical thinking because a part of Western understanding of critical thinking involves thinking from multiple perspectives outside of one's own in order to achieve what may be called a more comprehensive and nuanced understanding. Yet, as far as I am aware in both the literature and the way critical thinking is practiced in higher education in the U.S., there has not been a strong emphasis on achieving or prioritizing a sort of balanced view, nor explicit admonishment against positions that may seem extreme. In fact, as some participants pointed out, some of the critical thinking practices in American higher education have appeared quite extreme to them, such as the idea of absolute freedom of speech or cultural relativism (see detailed discussions in Nathan's case in the Group II analysis).

In other words, it may be argued that subtler differences—potentially linked to substantially different worldviews—also begin to emerge precisely at those points at which forms of critical thinking or criticality seems to converge or overlap across different cultures. The more obvious differences or aspects of critical thinking specifically espoused in American higher education noted that participants noted are as follows: First, echoing to the previously discussed point about participants' general preference for not imposing their viewpoints onto others, some participants found the argumentative structure and assertive nature of critical thinking as practiced in the West to be new and challenging for them. In other words, the highly structured form and direct expression of such argumentation may be culturally specific to critical thinking as espoused in the States. As Joanna explained, this particular manifestation of critical thinking

is particularly prominent in the U.S., because people have to vote and their votes can impact the future direction of the country. In other words, the stake may be higher and more immediate for people practicing critical thinking in the U.S. and thus there may be more urgency in expressing their criticality directly and forcefully.

Second, other participants also found the particular emphasis on individual opinions or *what I think* latent in the practice of critical thinking to be refreshing, liberating, and salient in American education and culture. As Arielle reflected: "While critical thinking is something we all need, it's generally lacking in Chinese culture. This is because Chinese parents typically has high expectations for their children and assert more control…in fact, it's prevalent in other Asian countries as well." As a result, Arielle further explained, Chinese children typically do not have as many opportunities to exercise their independent thinking abilities and build "an understanding about [them]selves"—both of which are essential for being able to think critically and make the right judgment for themselves.

Echoing Arielle's reflection, but said more pithily, Dio commented that while "in China students are well-trained with the ability to understand what others think, in the U.S., students are encouraged to focus on what they think." Dio's observation highlights an additional point, or the third point, that partially supports a culturally-specific view of critical thinking. That is, from Dio's perspective, while both sets of thinking abilities—i.e., to know what one thinks vs. what others think—are important and natural for humans to develop, they are being promoted or prioritized differently in different cultural and sociopolitical systems. Systems that are comparatively more "dynamic," "open," and "individualistic"—the U.S. being a paradigmatic example—are more favorable and supportive of critical thinking, independent thinking, or what

one thinks. Yet, as Dio also asserted, China and the rest of the world have been evolving economically and culturally under (global) capitalism; as the world moves toward "greater openness, individual freedom, and democracy,"[260] critical thinking as fostered in the liberal West "will become more prevalent across all cultures [or societies]." In other words, in spite of its elements of cultural specificity, critical thinking as "a type of thinking of human kind" is favored to become more universal.

In short, it may be argued that on the question of universality or cultural specificity, most participants would concur that essential aspects of critical thinking—e.g., the spirit to question the status quo and biases and the desire to seek truth and to understand oneself and the other—are probably universal. At the same time, they would also add that other, arguably more external and form-oriented aspects of critical thinking—e.g., the highly structured and rigorous standard for what constitutes good arguments and therefore good critical thinking—are more culturally and even academically specific. Yet even in these culturally specific aspects, as detailed in the earlier chapter, most students seemed to have found critical thinking to be a beneficial and useful tool in helping them learn better, see more, and make better decisions. This embrace of critical thinking, however, comes with an important caveat: participants seemed to suggest that critical thinking should not be applied unilaterally, but should instead be applied with differentiation and flexibility in different domains and sociocultural contexts.

[260] The world order seemed to have looked quite different or more optimistic in 2017/2018 when the interview was conducted than it is today, with democratic institutions or the trend toward democracy more conspicuously weakened within the U.S. and abroad.

III. Factors Contributing to Critical Thinking Development

Starting with this section, the following two sections of this chapter address respectively the two parts of the second research question proposed by this dissertation; namely, *what factors contributed to participants' critical thinking development; vice versa, what role did critical thinking play in these students' development as transnational/cross-cultural learners?*

In this section, I will respond to the first part of that research. The following analysis of the factors is drawn from the color-coded patterns that can be seen in the Excel document, part of which is shown below. I used the Excel document throughout the data analysis process to organize and update content information (in brief, summary form) from each participant for the purpose of uncovering emerging patterns. Further explanation of how this Excel document functioned as a data analysis tool can be found in the method chapter.

The twenty participants, as shown in the Excel document below, are organized into three broadly defined groups, in order of the levels of demonstrated critical thinking as shown in the data. Detailed justifications for this group organization and descriptions of the characteristics of each group (and subgroups within Group II) are provided in Chapter 6. While each individual is placed in a particular order in the Excel document, this does not mean that the differences among individual participants within a group vis-à-vis critical thinking capability can be precisely evaluated and placed in a hierarchical order. Such fine ordering may appear to exist in the Excel document, but that is more by default rather than by design. In other words, patterns that emerge from this Excel table should be understood in terms of broadly defined group units rather than individual case units.

Group	Participant	Gender	Major	GPA	Year & Trans	Secondary Education	Migration Status	Parental Education	Economic Statu
Group I	Claire	F	STEM--math	3.99	3	4. American High (3 yrs.)	2. Parachute	3. college equivalent (asso	M
	Tim	M	STEM--stat.	3.8	4T	2. Chinese Int'l School (e	1.* International (n	1. middle school or lower	UM/M
	Dio	F	SS (Hum min	3.7-3.8	3	2. Chinese/International D	1. International	1. high school or lower	M
	Audrey	F	SS	3.5	4	2+. Chinese Int'l School (b	1. International	4. college	M
Group II	Joanna	F	STEM--engin	3.76	4T (non-CC)	1. Chinese High/1-month	1. International	3. college equivalent (asso	M
	Ray	M	STEM--engine	3.4	3T	3. Chinese + American Hig	3. Immigrant	2. high school or lower	LM/M
	Alex	M	STEM--engine	3.9	4	2. Chinese/International D	1. International	1. middle school or lower	M/UM
	Eleanor	F	SS--Psych	3.86	3T	1. Chinese High/1-yr. colle	3.* Immigrant (mor	3. college equivalent (asso	M/LM
	Nathan	M	HUM	4	3T	3. Chinese + American Hig	3. Immigrant	4. college	M
	Arielle	F	STEM--engine	3.5	3	1. Chinese High	1. International	5. college/graduate degree	M/UM
	Cindy	F	STEM--biolog	3.75	3T	1. Chinese High	1. International	4. college	M/UM
	Taylor	F	STEM--bioogi	3.75	4	2. Chinese/International D	1. International	3. college equivalent (asso	M
	Antonia	F	STEM--cognit	3.0*	3T	1. Chinese High	1. International	2. high school or lower	M
	Hanna	F	SS--Psycholo	3.52	3T	3. Chinese + American Hig	3. Immigrant	3. college equivalent (asso	M/LM
	Hill	M	SS--psycholo	3.6	4T	2-. Chinese/Foreign Langu	3. Immigrant	4. college	M
	Faye	F	STEM--engine	3.38	3T(non-CC)	5. American elementary (3	3. Immigrant	4. college	M/LM
Group III	Jiayi	F	STEM--applie	3.892	3T (non-CC)	2. Chinese/International D	1. International	5. college/graduate degree	M/UM
	Erick	M	HUM	3.1	4T	5. Overseas elementary (3	2.* Parachute (ext	1. middle school or lower	UM
	Lili	F	SS	3.2	3	4. American High	2. Parachute	1. middle school or lower	M/UM
	Becky	F	STEM--applie	3.5	3T	1. Chinese High	1. International	3. college equivalent (asso	M
Note: 3.4 is a relatively high/good GPA for engineering					Note: T stands for community college transfer				

Table 4. Factors considered that may have affected participants' critical thinking development

1. Factors that did not seem to play a significant role

As the dispersed color-coded patterns in the above Excel table seem to suggest, the eight background factors (in the columns) considered in data collection probably did not play a *significant* role in shaping participants' critical thinking development—i.e., the robustness of their conceptions and the extensiveness of their applications of critical thinking across the domains. Let us consider each of the factors in more detail below:

(1) Academic Major

In terms of academic majors, there were 12 participants who majored in the STEM fields and 8 in the non-STEM (or social sciences and humanities) fields. Looking across the groups, both categories (STEM and non-STEM majors) may be found in each group, suggesting that students'

academic major may not have a significant impact on the quality of critical thinking they develop and demonstrate.

This finding may be surprising, given how participants in STEM fields often described critical thinking within their disciplines as logic-centered and narrow. Some even demonstrated reluctance in referring to their disciplinary thinking as "critical thinking," because questions in the STEM fields typically have a right or wrong answer. This is in significant contrast to writing critical thinking papers in the social sciences or humanities where the conclusion is often complex, open-ended, and argumentative. However, if we take into consideration that a substantial portion of the participants had acquired critical thinking early on, outside of formal education, and that all STEM students have taken varying extents of courses in the humanities and social sciences (and a number of them had minors in non-STEM fields), then the pattern negating academic major as a defining factor in participants' critical thinking development would seem to make sense.

(2) GPA

As a number of participants noted, particularly those in Groups I and II, GPA is not a good indication of a student's critical thinking capability. While GPA may be an indication of how well a student does in his or her chosen discipline, it may at best suggest how successfully the student is at grasping discipline-specific knowledge and critical thinking. For the STEM fields, such discipline-based critical thinking may be particularly narrow or logic-centered. In addition, as Cindy, a student in the biological sciences, reflected, "critical thinking takes a lot of time and effort, yet I can get pretty good grades by simply learning and absorbing the course material in a

normal way." In other words, as Cindy later added, unless it was a subject that really interested her to further explore on her own, there was not a lot of disciplinary incentive for her to apply critical thinking in her STEM studies. Similar observations about the lack of critical thinking requirements, outside of logical thinking, were also made by other participants in the sciences and some social science majors (e.g., psychology).

Nevertheless, it may be worth noting that Group I and II students tend to have higher GPA on average, which may suggest that students who demonstrate higher critical thinking capabilities also tend to do well in their disciplines. Granted, the reverse can also be said about the higher GPA and higher demonstrations of critical thinking: students who do well in their disciplines also tend to have higher critical thinking capacities. However, as discussed earlier, a number of participants stated that GPA is not a good reflection of one's critical thinking abilities and some other participants observed that students may demonstrate strong discipline-specific critical thinking skills without being able to think critically in other domains. These assertions seem to lend more support to the interpretation that higher critical thinking capabilities in the broad sense help to boost GPA and improve critical thinking in the narrower, discipline-specific version. If so, the patterns found in the data provide support for the generalist approach to critical thinking education, which argues that by learning general critical thinking skills (e.g., informal logic, argumentative analysis and construction), students would gain faster mastery of individual academic subjects as well.

(3) Educational Background: Tertiary Level

As half of the participant population consisted of transfer students from community colleges and the other half from research universities (i.e., 7 were non-transfer WCRU and 3 transfer students were from similar but less highly ranked universities), students' tertiary educational background was considered as a potential factor in contributing to their varied critical thinking development. This factor seemed promising because these community college transfer students typically had taken a less straightforward educational path, as a few of them (e.g., Erick, Eleanor, and Tim) had extensive traveling or work experience before resuming their education and others had experienced disruptions in their education either due to immigration reasons and/or a desire for better alternatives. In addition, 8 of the 10 community college transfer students came from the same state where designated courses on critical thinking were taught as a graduation requirement for all state university students. Since life experiences is thought to contribute to the development of critical thinking in the broad sense, as reflected in the participants' responses, and designated teaching on critical thinking is implemented for the purpose of strengthening students' critical thinking capabilities, perhaps some differences may be found between students with community college transfer backgrounds and those without.

The information in the Excel table under the column "Year and Transfer Status" did not seem to suggest a discernable pattern of differences between these two categories of students. This finding may be explained by factors that are not immediately apparent or less identifiable externally. For example, all of the participants in Group I, except Tim who was a community college transfer and developed critical thinking in college, were early developers of critical thinking due largely to their own initiatives. In addition, even though some community college students (such as Tim) had taken a course on critical thinking, the concept and practice of how

to actually think critically may not be clear to them, due to a lack of quality teaching and/or lack of active practice by students themselves to cement the learning. By contrast, even though universities such as WCRU did not offer designated courses on critical thinking, on a few occasions, writing courses and courses in the social sciences and humanities (e.g., in Joanna, Taylor, and Audrey's accounts) did provide implicit instructions on how to think critically through supportive pedagogy and assignments.

It may be worth noting that community college students who had taken a series of well-designed courses aimed at fostering students' critical thinking (e.g., Nathan, Eleanor, and Ray) did demonstrate a robust understanding and practice of critical thinking, at least in the academic domain. If the grouping of the students in this study vis-à-vis their demonstrated critical thinking abilities had been ordered only by how well students were able to articulate the concept "critical thinking" and apply it in the academic domain, these community college students would have been ranked even higher and half of the Group I students would have been ranked lower. In other words, while it appears that the role internal factors play in students' critical thinking development may be stronger than the role of direct instruction, formal education in critical thinking may still be helpful in fostering greater clarity and appreciation for the concept and its function.

(4) Educational Background: Secondary Level

The participants came from a wide range of secondary education backgrounds. Among the 20 participants, 3 were parachutes who started studying abroad in high school or earlier, 4 were immigrant students who had at least 2 years of high school in the U.S., 7 were students who

attended high schools in China with a designated program or curriculum geared toward preparing students for higher education abroad, and 6 received a more typical high school education in China (though often at a top school in their home regions).

In spite of the obvious educational differences, such as those between traditional test-oriented Chinese high school education vs. generally more liberal and critical thinking-oriented American high school education, no apparent pattern may be found under the column "secondary education." If anything, the color-coded pattern seems to suggest that parachute students who had received early education abroad tend to demonstrate lower levels of critical thinking application across the domains, while students who had received international (i.e., American or British) education in China tend to demonstrate higher levels of critical thinking application—though exceptions may be found in students of either educational background. The lack of a strong pattern here—as all four types of secondary educational background can be found in each group—may be partly the result of the relatively small sample size; perhaps, clearer pattern may emerge with more data sets. In addition, while the schools attended by participants in China (traditional program or international program) tended to be highly selective in their regions—requiring high test scores to be admitted—the schools attended by participants in the U.S. (as parachute or immigrant students) tend to be less prestigious. Therefore, when similar types of high schools are compared across countries, different or clearer patterns may emerge.

This is because the quality of education rather than the geopolitical location of school may matter more. When each of the participants' educational backgrounds and experiences are examined in depth, it is also apparent in both direct and indirect ways that the general nature, if not higher quality, of international schools or programs in China may have provided a better

environment for Chinese students to develop their critical thinking for several reasons. Briefly, these international programs or schools typically offer some levels of introduction to critical thinking through course work and extracurricular activities (e.g., English/American literature, preparation for the SAT, student government, and Model United Nations). Moreover, these programs generally offer more space for students to explore their interests, agency, perspectives necessary for critical thinking. Some of the more well established programs provided additional support to help students resolve cross-cultural conflicts that can indirectly strengthen their abilities to apply critical thinking across domains and sociocultural contexts (e.g., interventions or workshops for parents on how to better support and encourage students' interests beyond the traditional focus on academics in Chinese education system).

In other words, as a whole, formal education at the secondary level, as well as at the tertiary level, can make a substantial impact on students' critical thinking development. However, such educational factor may not play a decisive role. The consistent lack of strong patterns across the columns or factors, as discussed earlier and will be further explicated below, seems to suggest that perhaps other less obvious or identifiable factors may be causing the differences in how the three groups understood and practiced critical thinking—from robust, rich versions in Group I to increasingly more partial and thin versions in Group III.

(5) Migration/Immigration Status

As all of the participants in this study have migrated from China to the U.S. for education, it may be argued that they all have some forms of migration status. Among them, 6 participants were immigrants (i.e., Chinese national but with permanent residency in the U.S.), which might

suggest a different sociopolitical status, typically longer time spent in the U.S., and/or greater investment into their resettlement in the new country. As a result, they might also be more comfortable applying critical thinking in the sociopolitical domain, as politics is traditionally a sensitive topic for people in China.

Surprisingly, while students with immigration status tend to be generally more open about applying critical thinking in the sociopolitical domain—demonstrating a less defensive position about the political status quo in China— critical thinking about sociopolitical issues can, in fact, be found, across students of different migration statuses. In other words, while some participants who were not immigrants and who stated a desire to return to China eventually (i.e., after some more years of education and work experiences in the U.S.) did demonstrate reservations about applying their critical thinking skills to the sociopolitical domain, others were quite candid about what they saw as strengths and weaknesses in both China and the U.S. (e.g., as detailed in Tim, Joanna, and Alex's accounts in the group analysis chapter).

The lack of strong pattern of critical thinking capabilities between the immigrant and non-immigrant students may be caused by at least the following two reasons. First, the groupings of participants vis-à-vis their demonstrated critical thinking abilities are organized by how extensively they grasped and applied critical thinking across the domains, rather than just one domain—academic or sociopolitical. Therefore, while immigrant students, who tend to cluster in Group II or the middle of the column under "Migration Status," may have demonstrated more critical thinking applications in the sociopolitical domain, they may have applied less in the personal domain of everyday life. Second, just as not all non-immigrant students were reserved about applying critical thinking in the sociopolitical domain, not all immigrant students were open

or interested in applying critical thinking beyond their immediate academic and personal concerns. This blurred demonstration of critical thinking applications between the immigrant and non-immigrant students seems to reflect an increasingly fluid sense of belonging and sociopolitical loyalty in this younger generation of Chinese students abroad. That is, with the diversification of socioeconomic and educational background among Chinese youth who are educated in China or who immigrate abroad, their sense of affinity and views on sociopolitical matters are not as confined within their identifiable legal status, as it was with older generations of Chinese student abroad. For example, while some of non-immigrant participants (e.g., Audrey who went to an international/British boarding school in China) professed little affinity with mainstream Chinese culture and society, some immigrant participants who lived in predominantly Chinese or immigrant communities in the U.S. stated desires to return to China for work and living. In short, immigration status may not reflect much of the participants' sociopolitical view or their willingness to engage critically with sociopolitical matters in the global age of mass migration of goods, information, and people like the transnational Chinese students.

(6) Gender

Among the participants in this study, 14 or 70% were female and 6 or 30% were male students. No discernable pattern seems to emerge from the Excel table about gender being a significant factor in shaping students' critical thinking capabilities.

However, closer examination of the participants' data (as demonstrated in the earlier chapters) seems to indicate that female students typically experience greater sociocultural constrains in China. For them, the ability to think critically can be, on the one hand, an extra

useful tool for asserting their agency in making their own decisions, and on the other hand, a greater liability in the sense that their choices and examined values may contradict with the social norms back home. For example, Claire, Joanna, Taylor and Becky all described conflicting choices they have had to negotiate within themselves and/or with family members, ranging from the seemingly small matters—e.g., what to wear at home or in public—to the more consequential decisions—e.g., what is appropriate for girls to study and pursue as a career and when to date and get married. In other words, the nature and intensity of the cross-cultural conflict and problems that many female participants encountered are not reflected in the pattern, as the grouping of the participants in the Excel document looks at students' overall understanding and practice of critical thinking across the domains. If we were to disaggregate the domains, perhaps female students would demonstrate greater applications of critical thinking in the personal domain or on sociocultural issues closely tied with their identities as Chinese females desiring greater acceptance, freedom, and social equality. Collectively, moreover, these young Chinese females with enhanced critical thinking abilities may play a significant role in the future of China as it becoming increasingly diversified or, as Giddens and Beck (1994) may have described it, "late modern."

(7& 8) Familial Economic Status & Parental Education

As these two factors—familial economic status and parental education—are two major aspects of what is commonly known as "socioeconomic status," I will discuss them together as potential factors that may or may not have contributed to participants' different critical thinking development. Before delving into the possible connection between these factors and students'

critical thinking capabilities, a brief explanation may be necessary of the patterns that have emerged within these factors themselves or within the two last columns of the Excel document, as they may be revealing about the contemporary Chinese context relevant for understanding some of these participants' familial backgrounds.

The column titled "parental education" indicates a relatively low level of parental educational attainment for many of the participants. Almost half of the students' parents had received only some forms of secondary education, which also reflected their non-urban backgrounds, since there were few educational opportunities available to the youth in the countryside or in small towns in China. Yet when we juxtapose this parental education column with the self-reported economic status column to the right, a surprising contrast emerges. Many of the participants with parents from the rural areas had indicated a relatively high income level ("UM" or upper-middle class). This is because in spite of a lack of formal education, their parents were able to build substantial wealth through ownership of small businesses, often in large Chinese cities as migrants. While their success may reflect increasing socioeconomic mobility for people in the Chinese countryside over the past few decades, it may also be worth noting that despite their wealth, many of them were not able to obtain resident permits in the city. As a result, their children (e.g., Tim and Lili) were not able to attend well-funded top public schools in the city or enjoy other privileges typically allotted to urban youth (e.g., lower entrance score on the *gaokao*, the intensely competitive national college entrance exam). This limited local educational access for upward mobility, however, is offset by the increasing availability of global education, which is less dependent on official city residence and is accessible as long as one is able to pay for tuition.

In addition, it may be noted that the correlation between educational attainment and social economic status, which is known to be strong in the U.S. and perhaps other parts of the developed world, may be relatively weak in China, at least for the participants' parental generation. Although the implication of this weaker correlation is beyond the purview of this dissertation, it is possible that greater socioeconomic mobility might prompt a relatively more open parental attitude toward a greater diversity of academic and career choices from the participants. Both the participants and their parents know from their experiences and stories of others of their generation that there are different paths toward financial success and opportunities.

In terms of how patterns in these columns relate to participants' critical thinking development, there is no suggestion that higher parental educational level and/or higher economic level lead to higher critical thinking development among the participants. In fact, Group I and III students came from diverse parental education backgrounds, and participants with higher parental education backgrounds (college and above) tended to cluster in Group II. These findings seem to suggest that familial economic status and parental education attainment are not significant factors in determining students' critical thinking development. In other words, instead of seeing a positive connection between parental education level and critical thinking abilities—as one may expect—the data in this study did not show such a pattern. A possible explanation for this unexpected finding could be that the younger generation of Chinese parents, who have themselves experienced upward class mobility via varied routs to succeed, may in fact be more open to their children pursuing different interests and trying non-standard paths—all of

which calls for and, at the same time, fosters greater independence and critical thinking capabilities.

2. Factors that did seem to play a significant role

The lack of significant pattern from within the various demographic, educational, and familial background factors considered above seems to suggest that these readily identifiable external factors probably did not play a significant role in the participants' varied development of critical thinking. Yet, the question still lingers: *what then contributed to the spectrum of critical thinking conceptions and practices among the participants?*

The answer may lie in more internal factors or dynamics. Such internal factors are largely hidden from the more identifiable and quantifiable factors just considered; however, they can be seen in students' responses and stories. Since most of these internal factors have already been detailed in the previous chapters, the following discussion will adopt a largely summary form.

(1) Selfhood

The concepts of "selfhood" and "sense of self" have been used interchangeably in this dissertation to include the following distinct yet interconnected components: general attitude toward oneself, self-confidence or independence, and self-knowledge. The importance of these internal components came to the fore initially in the detailed analysis of two contrasting cases—Jiayi and Claire. That is, while Jiayi demonstrated weaker conception and application of critical thinking, along with a largely self-negational attitude toward her own preferences, Claire exhibited a sophisticated conception and robust application of critical thinking across domains,

along with a self-affirming attitude toward her own ideas that was both determined yet open to self-examination and change. This set of contrasting relationship between selfhood and critical thinking development was later explored and supported in the group analysis, in which all Group I students showed both strong critical thinking application and an affirmational attitude toward the self, while most of the Group III students revealed weaker critical thinking application and a negational attitude toward the self.

In addition, students in Groups I and II who were generally more affirmational toward themselves also showed greater confidence in being independent and exercising their own judgment, for which the role of critical thinking in facilitating and improving judgment became salient. In other words, just as critical thinking strengthens one's ability to act independently, one's desire or will to be independent also exercises one's critical thinking abilities and make them stronger.

In addition, as detailed in the group analysis, such as in Tim's case, the process of thinking critically—evaluating different options/arguments and concluding with a position of one's own—requires knowledge of the self, which may include knowledge of one's preferences, values, experiences, and/or personal traits. Participants with robust demonstrations of critical thinking capabilities also revealed a strong interest in self-knowledge, active examination of the self, and dissincorporation of the subjective component into the rational process of critical thinking. By contrast, participants with weaker critical thinking applications revealed weaker understanding of the self, which was typically unexamined and more partially, if at all, taken into consideration in their thinking and decision-making processes.

This finding on the connection between critical thinking development and students' selfhood may be noteworthy given that an explication and emphasis on the self and its role in the critical thinking process is largely absent in the critical thinking literature. Such emphasis on the necessity of possessing a sense of self that is both affirmational yet open to adjustment and improvement may be pertinent for students of diverse cultural backgrounds. This is because, according to almost all participants, they were raised in a cultural environment that typically provided little encouragement and recognition for their individualities but plenty of criticism and discouragement at home or in school for what they have not done well enough by a competitive standard. Even for students who late grew out of the shadow of such judgements, such as Joanna, the battle to affirm herself and fight off her acquired low self-esteem was constant, as she reflected: "…like even in my case, I worked out somehow, but I could see it easily go wrong." At the same time, many participants also observed that American students, by contrast, had grown up in an environment where they frequently received praises for things that are both praiseworthy and "not so extraordinary;" as a result, while they are more confident in general than Chinese students, they may also be less open to suggestions and critiques. In other words, building a selfhood that is both affirmational and open for improvement can be challenging and important for Chinese and American students, though what each need to work on in terms of a mature selfhood necessary for critical thinking may differ.

(2) Non-rational vs. irrational dimension

This pair of contrasting concepts—the "non-rational" and the "irrational"—are unexpected findings from the study data that seem to further explain the underlying causes for

the varying manifestations of critical thinking capabilities among the participants. The "non-rational" dimension was found most prominently and consistently among Group I students, who not only demonstrated robust critical thinking applications and sense of self but also a dimension of knowing that was outside of the rational within which critical thinking has typically been thought to operate. This non-rational dimension beyond critical or even conscious reasoning was mentioned variously by these participants as "inner voice," "intuition," "feeling" (particularly empathy), "spirituality," and "religious faith."

In Claire's case, for example, the non-rational dimension manifested in this way: in spite of her rigorous conception and application of critical thinking, the place for the heart or her inner voice was never replaced but respected in her decision-making process. In other words, Claire's application of critical thinking, especially in the personal domain, entailed a balance of rational reasoning processes and non-rational knowing. Moreover, this balance that checked the use of rational or logical reasoning—by allowing the heart to also shape her decision-making—seemed to serve Claire well in her overall development and wellbeing.

Granted, inner voice, feelings, and religious faith can function in a way that is not non-rational but irrational (inhibitive rather than complementary to or conducive for rational thinking), and the tension between the rational and the non-rational dimension is perhaps always present (as more prominently exhibited in Audrey's case). Yet in all of Group I students' accounts, the rational/critical and the non-rational co-existed and operated in a way that strengthened the usefulness of both dimensions for perceptions and insights. That is, while critical thinking was applied by these students to question the reliability of their non-rational dimension in its developmental stage, the examining process also allowed the non-rational to be better

understood and trusted for comprehension and decision-making. At the same time, the non-rational dimension can also enhance one's capacity as a more flexible and sophisticated critical thinker, as demonstrated in Dio and Tim's cases where their religious or metaphysical worldview provided them with a more vast perception of the world from which the strength and limitation of critical thinking as a mode for knowledge construction and problem-solving become clearer.

By contrast, moving from Group I to Groups II and III, an increase of the irrational dimension may be found in participants' accounts. Group III students, for example, all displayed thinking or responses that seemed to impede them from trusting their inner voices or knowledge, exercising their agency, and focusing on the rational strategizing needed to realize their goals or dreams. Often, their irrational responses stemmed from past experiences or emotions that had negative impact on their self-development, reflecting the greater irrationality in their respective social/familial environment, as detailed in the group analysis chapter. Group II students often exhibited varying combinations of non-rational and irrational dimensions. For example, in pursuing their dedicated academic and life goals, the "passion" or "focus" a number of participants embraced (e.g., Arielle, Cindy, Eleanor, and Faye) functioned both as a non-rational dimension that propelled their critical thinking development in their chosen field and an irrational force that inhibited critical thinking in areas that might challenge their decided course.

In short, while both the non-rational and the irrational dimensions are not much addressed in the literature on critical thinking as a primarily cognitive process, the presence of a non-rational dimension among participants with strong critical thinking capabilities may be worth noting. This is because the non-rational dimension challenges the often binary thinking around religion, emotion, intuition as the antithesis of rational or critical thinking; yet, as participants'

accounts demonstrated, these elements in life can function in a non-rational and complementary way that enriches our ability to think critically, making it a multi-dimensional activity.

(3) Parent-child dynamic

The parent-child dynamic may be a particularly important topic to explore in the (transnational) Chinese student population, because of the centrality of family or parents in the Chinese way of life and participants' sense of self. While the study collected extensive data on this aspect of participants' experiences, due to consideration for the time and length of this dissertation, this topic and its impact on students' critical thinking development will only be briefly addressed here. Aspects of this parent-child dynamic and its significance in shaping students' experiences have also been detailed throughout the earlier chapters, particularly in the discussions of the two in-depth cases—Jiayi and Claire—as well as in the discussions of Group III students.

What stood out from the earlier analysis vis-à-vis parent-child dynamic is that in comparison to participants in the other groups, particularly Group I, Group III students reportedly experienced greater negational attitude or control from their parents, pressuring them to conform to the perceived norms or expectations. As a result, Group III students generally had less freedom to exercise their agency and critical thinking that would have been necessary, if they had been allowed or encouraged to make their own choices. In other words, it was not just parental support that mattered to students' critical thinking development but the form in which such support took: whether through close monitoring for ensuring that children follow the

"correct" course prescribed by them or through encouragement or trust in letting children exercise their independence and judgment.

Granted, the dynamic goes both ways, as in some cases (e.g., Dio and Claire in Group I), participants' strong will or consistent academic success made the parent-child dynamic easier to negotiate, and they enjoyed greater freedom to pursue their interests. In other cases, in spite of intensely controlling or negational parental style, participants (e.g., Antonia, Becky, and to some extent Hill) were able to develop a protective shield around themselves within which they kept a degree of distance and freedom to formulate their own thoughts. Yet, by and large, more liberal and/or communicative parental style and parent-child dynamic (e.g., as in the cases of Tim, Claire, Joanna, Cindy, and Hanna) helped to boost participants' sense of self, independence, and critical thinking development.

(4) Educative environment for critical thinking development

If the parent-child dynamic at home can be perceived as a factor of one's intimate or *small environment* that indirectly impacted participants' critical thinking development, there may also have been a *larger environment* constituted of educational resources and support in both formal and informal sense that had also played an implicit yet important role in fostering participants' critical thinking capabilities. For example, (1) the availability of academic resources (e.g., books, courses, research opportunities) that provide students opportunities to explore topics of their interest; (2) the provision of smaller classes and accessibility to instructors that create more engaged discussions; (3) the seemingly simple matter of having sufficient time to read and reflect on one's learning and experiences; (4) the engagement with extracurricular activities and diverse

student population that stimulates interaction and curiosity about ideas and practices different from one's own; (5) the exposure to what may be called "esoteric knowledge"[261] (Lim, 2016), which is arguably the very product of critical thinking and can stimulate students' own critical thinking processes.

Such resources conducive to critical thinking development may not always be confined within the particularly geopolitical location of one's formal education—China or the U.S.—or defined by the ranking or prestige of one's institution—community college or research university. That is, as discussed in the earlier section, no clear pattern was found within the formal educational factors at the secondary or tertiary level vis-a-vis students' demonstrated critical thinking capabilities across the domains; yet, in participants' stories, there were also clearly educational conditions that seemed to have made a difference in their critical thinking development.

In other words, it may be the *actual quality* of one's educational environment vis-à-vis the teaching or fostering of critical thinking that perhaps mattered more than the *category* of the school. As some of the community college transfer students to WCRU observed, critical thinking as a concept and a spirit of inquiry seemed to be promoted less at the research university, in part because the academic pace was so fast and the quantity of disciplinary knowledge was so great that most people were busy either transmitting or absorbing the course content. Perhaps there

[261] According to Lim (2016), this concept of "esoteric knowledge" comes from Basil Bernstein and Durkheim, which argues that "there are at least two classes of knowledge, the esoteric and the mundane" in all societies (p. 16). "Esoteric knowledge" refers to "conceptual and theoretical knowledge, the site and means of knowledge production" and represents "the key to the 'unthinkable', the 'impossible', the 'not-yet-thought', and so carries a vast amount of social power and status" (p. 16-17). By contrast, "mundane knowledge" refers to "established knowledge, everyday knowledge that has been made 'safe' by its selective incorporation into and legitimation as 'official knowledge' " (p.16). Lim suggests that educational researchers should examine how esoteric knowledge can be "pedagogized into and 'becomes' mundane knowledge" (p. 17).

is an uneasy tension between the cultivation of critical thinking, which requires leisure time and engaged dialogue, and the pace of academic life, which may be driven increasingly by faster productivity under global neoliberalism. While this tension does not seem to be often recognized by higher education in the U.S. that purports to foster critical thinking as an essential educational goal, it may, as reflected in this dissertation research, needs to be more fully examined and wrestled with.

IV. The Role of Critical Thinking in Shaping Students' Overall Development

This last section of the chapter will address the second half of the second research question proposed by the dissertation—i.e., *what role did critical thinking play in these students' overall development as cross-cultural learners?* I will begin the discussion by exploring briefly the challenges and changes participants experienced abroad (in the first subsection), on the one hand, and their self-reported usage and importance of critical thinking (in the second subsection), on the other hand. An exploration of these two sets of phenomena together—i.e., the notable challenges participants had and their utilization of critical thinking as a possible tool for improving their situations or experiences—may provide some inklings to the possible role critical thinking has played in participants' overall development in college. These two subsections are followed by a third subsection that discusses how critical thinking may or may not have shaped participants' growth across domains: the academic, the sociopolitical, and the everyday life.

1. Challenges & Changes Abroad

(1) Challenges

In the data collection, I first asked participants to describe the challenges they may have experienced abroad in the online questionnaire. Out of the 20 participants, 2 students reported no challenge. The challenges reported by the rest of the participants can be categorized into four types as follows: First, one of the most frequently mentioned challenges by participants was language. About 5 students reported language as their primary challenge, citing that English being a foreign or second language to them can be challenging at times in both academic and social domains. In addition, another 3 students also mentioned language as a challenge, along with other challenges that they prioritized in the questionnaire response.

Second, closely connected to the language challenge, was another frequently mentioned challenge in the sociocultural dimension. The sociocultural challenge was reported by 5-6 participants, which was expressed variedly as a "cultural barrier," "cultural reference," "background knowledge," and the cultural knowledge of how to "express/show oneself" in a foreign culture and build connections with others. The ability to establish rapport with professors was of a particular concern for some participants, because professors provide the necessary recommendation letters and research opportunities for these students' future academic endeavors. As detailed in the in-depth analysis of Claire's case, many participants—having grown up in a culture that emphasized modesty and respect for hierarchy, especially in formal settings or relationships—found it difficult to be assertive and communicate their needs to others, particularly to figures of authority, such as their professors.

Third, 4 students indicated academic challenges, highlighting the challenging disciplinary content of their particular majors at a highly competitive research university. In addition, 2 more

students also mentioned academic challenges, along with the language challenge they prioritized or mentioned first.

Fourth, 2-3 participants reported intrapersonal challenges, such as figuring how to choose one's academic major in light of greater opportunities and freedom in the U.S., and how to manage time and maintain a balance between academic work, social activity, and rest. The challenge of knowing how to "express/show myself"—i.e., in the new environment abroad— can be counted as either sociocultural challenge or intrapersonal challenge, because it often crosses over both categories in these participants' accounts. Drawing upon Claire's case as an example again, while asserting herself can be challenging for her in the formal Chinese context because of her imbibed sense of modesty in the intrapersonal domain, the challenge was more pronounced abroad because of the different sociocultural norm. Individuals are, as Claire and other participants observed, permitted or expected to be more assertive and self-promotional in the American social context.

While salient challenges initially mentioned by participants in the questionnaire form centered around language and related cultural issues for them in a foreign environment as transnational/cross-cultural students, deeper and more personal challenges came to the fore in the two follow-up interviews. For example, more than half the participants described some types of intrapersonal issues that were not in the questionnaire responses. Even though the types of intrapersonal challenges mentioned in the interviews did not differ significantly from those stated in the questionnaire—e.g., important decision-making, life and work balance, and self-assertiveness/confidence—the pervasiveness of such issues in the interviews was noteworthy.

Granted, the holistic approach of the dissertation project and interview questions have likely facilitated the uncovering of participants' selfhood challenges to an extent, just as the commonly presumed brevity of online questionnaire responses may have shaped participants' initial responses oriented around the more straightforward issues of language and cultural barriers. Yet, as mentioned in the method chapter, a number of students participated in the study because the research topic resonated with them and they came specifically to share or reflect on their experiences. Moreover, all participants expressed a strong desire to understand themselves as individuals and an urgent responsibility to define their own paths—all of which became prominent as they entered adulthood and were exposed to greater diversity, freedom, and opportunities since going to college abroad. In other words, issues around the self or in the personal domain were central to these participants due to the particular stage of their emergent adulthood, heightened by the complex transnational/cross-cultural context within which such meaning-making development took place.

Overlapping, sometimes, with the intrapersonal challenges are the interpersonal or sociocultural challenges that seemed to be almost equally prominent in participants' interview accounts. In comparison to the more generic descriptions (e.g., "cultural barriers" or a lack of "background knowledge") provided in the online response, participants' discussions of challenges in this dimension in the interviews were more concrete and in-depth. For example, closely connected to their generally more introverted, modest, and/or reserved sense of self (as self-reported by at least half of the participants) is the sociocultural challenge of expressing oneself and connecting with others in the U.S. where people are generally more extroverted, assertive and verbally communicative. A lack of a wider sense of belonging to the American social

life on campus, along with experiences of explicit discriminatory remarks or latent sense of marginalization because of their ethnic, racial and/or cultural identity, was also present in most of these participants' sociocultural experiences abroad (e.g. as detailed in Claire and Eleanor's case analyses).

It may be worth noting that such sociocultural challenges seemed to be more acute among participants who have stayed longer in the U.S.—i.e., immigrant and parachute students. While this finding may be contrary to the common understanding that adjusting to a new environment takes time and that people will eventually establish a stronger sense of belonging, it seems to align with the research on "immigrant paradox" in the U.S. (Coll & Marks, 2012; Suarez-Orozco et al., 2009). This research observes that immigrants of color tend to do less well across generations, particularly from the first to the second generations, and one likely cause being the gradual toll of sociocultural and racial marginalization on later immigrants' sense of wellbeing and thus their overall socioeconomic, health, and education outcomes.

In short, there appeared to be some differences between the participants' online vs. interview responses in terms of their self-reported challenges abroad. While language and academic challenges in the cognitive dimension continued to be mentioned by about 1/3 of the participants in the interviews, greater challenges seemed to lie in the personal and sociocultural—or intrapersonal and interpersonal—dimensions. Issues around the self and one's relation to the other are arguably more complex and less well-defined, raising questions that cannot be answered with absolute certainty. Arguably, these "ill-defined" questions (King & Kitchener, 1994) call for a kind of critical thinking—or as some would prefer to call it "reflective

thinking/experience” (Dewey, 2012 [1916]) and “reflective judgment (King & Kitchener, 1994)—that is also more sophisticated for problem-solving beyond the academic domain.

(2) Changes

In terms of significant changes during their time abroad, most participants mentioned positive changes in the intrapersonal dimension in their initial online responses. Such changes include the following major categories: becoming “more confident” and “outgoing,” feeling more “valued” and “respected,” shifting toward more “individualistic” values, and experiencing greater “motivation” to study hard. Perhaps closely connected to these intrapersonal developments are also interpersonal and cognitive changes. These changes included becoming “more caring and understanding” toward others, more “open-minded about certain ideologies and values, e.g., LGBTQ rights and gender equality,” and more invested in “the meaning or the goal of study” as something significant for oneself beyond the purpose of obtaining a high GPA. While some students perceived these changes as rites of passage or a natural development of their “inner self instead of the outer environment,” most participants seemed to agree that the more diverse, dynamic, and freer environment in American higher education had some positive impact on their changes or transformation abroad.

By contrast, a few students also noted less positive changes in their online responses, such as feeling “more anxious” about their academic performance and career trajectory, or becoming more “conscious about my race and appearance.” Interestingly, all of these participants who highlighted the more negative aspects of their changes abroad were also immigrant students. This pattern of more pronounced negative changes reported by students

who have lived longer or were more invested in their lives in the U.S. seems to support the research on "immigrant paradox" and issues around race (e.g., racial marginalization and a drop in social economic status) as an underlying cause for the paradoxical development, as mentioned earlier.

Changes described by the participants in the interviews remained fairly similar compared to the online response. The few exceptions, in which the self-reported changes differed between the online and the interview accounts, may be explained as changes in one dimension often lead to changes in other dimensions as well. For example, in his initial online response, Ray mentioned a change in his attitude toward knowledge: "I didn't realize the meaning or the goal of study until I came here." As he discussed in the interviews, when he immigrated to the U.S. as a high school student, he suddenly had "a lot [more] spare time" to reflect on his earlier motivation for learning, which had been—like most of his peer in China and the U.S.— directly largely by "peer pressure" and the common perception of academic learning as a means to achieving success and security in life. As he reflected and had the time to read more books and take courses in a wide range of courses, Ray questioned whether getting into a good university should be the sole purpose for studying hard. He gradually formulated his own position on this matter: while financial security is an important consideration for him, the primary motivation for learning should be in pursuit of something "higher" or more "spiritual."

By the common phrase in Chinese, "spiritual pursuit,"[262] Ray was referring to quests that are less materialistic, externally defined, but more "internally defined" and genuine to his

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[262] Ray's original word in Chinese, "精神追求," does not match easily to one concept in English; rather, it can be translated to mean "spiritual pursuit" and/or "intellectual pursuit"—essentially pursuits that are non-materialistic and truth-directed.

consistent interests and individual attributes. In other words, the change in his perception and attitude toward learning was also a change in the way he began to relate to himself—as a more independent, thoughtful, and "self-authoring" individual (to borrow the term from constructive developmental psychology as mentioned earlier). His cognitive and intrapersonal maturation may also help to explain other changes he mentioned in the interpersonal dimension as he described in the interviews. That is, to summarize in brief, a more nuanced and balanced view of his own about the various relational tensions at home, at school, and in the larger society for which he had previously thought in a binary and unexamined way, defined largely by others or commonly accepted norms.

Similar changes that begins in one of the three dimensions—cognitive, intrapersonal and interpersonal—and later expand to other dimensions, as mentioned in the "self-authorship" literature, can also be found in Alex's case. As detailed in the group analysis chapter, Alex's transformation or substantial changes were initially motivated by the desire to better resolve challenges in the interpersonal and intrapersonal dimensions: his increased self-consciousness and uneasiness about his own introversion in the new or English-speaking environment abroad, and his growing quest for meaning in the knowledge and skills he has acquired as an engineering student. While quests in the intrapersonal and interpersonal dimension translated into a series of cognitive activities—e.g., reading extracurricular books and taking numerous courses in anthropology—knowledge from the thought-provoking books and courses also prompted him to think or reflect critically of his own assumptions. As a result, he also began to take correlating actions that eventually led to a more open and engaged relationship with others and events in the world that he "did not care about before."

In addition to substantial changes in the intrapersonal and interpersonal dimensions described by participants in the interviews, many also mentioned a change of perception about China and the U.S. due to their experiences abroad and exposure to a much wider range of information, knowledge, and sociopolitical critique. Interestingly, while participants generally gained a more critical perspective on China, particularly among the female students on issues in gender hierarchy and inequality in the Chinese society, many also mentioned an overall greater appreciation for China as a result of their transnational experiences.

For some students, a more patient understanding for the existing issues in China came from the knowledge gained in the courses at the university. As Joanna said, for example, her understanding of the feminist movement in the U.S. helped her to realize that it was a long process and a continuing issue even in the West; therefore, changes toward gender equality in China would take time as well. For other students, the change or even reversal in their perception of China—from critiquing its numerous social, political, and environmental problems to appreciating China's accomplishments and potentials—stemmed from more direct, personal experiences in the U.S.

As a number of students pointed out (e.g., Taylor, Cindy, Tim, Erick, and Nathan), the much espoused "freedom" in the U.S. may be a relative rather than absolute good. This is because on the one hand, an absolute practice of freedom can lead to social and political instability; on the other hand, the antithesis of freedom—i.e., control—may be covert in the U.S. under (neoliberal) capitalism but no less prevalent as in China. In other words, many participants also demonstrated a change in perceptions in the sociopolitical domain, reaching an arguably

more complex view about the two worlds to which they became increasingly familiar, if not attached to for various reasons.

It may also be worth noting that in spite of their critique of the limitations of the American sociopolitical system, particularly disadvantageous for people of color, almost all the participants also expressed gratitude for the many positive perspectives, values, and practices they were exposed to in the U.S. As detailed in the earlier chapters, many participants mentioned a change toward having more empathy or respect for other people, gaining great appreciation for themselves as unique individuals, developing a more genuine attitude toward their study and interests, and practicing a more open-minded and thoughtful approach to ideas and decision-making. Arguably, all of these cognitive and/or dispositional changes are essential not only for one's development as a critical thinker but also for one's maturation as a democratic individual—especially in the social sense as espoused by Dewey in *Democracy and Education.*

2. Usage & Importance of Critical Thinking

(1) Importance

In response to the initial online question "*how important is critical thinking for you?*", all participants affirmed its importance, though their affirmations varied in degrees. More than half of the students described critical thinking as something very important to them: e.g., "I rely on it every day," "[s]uper important; it is just a good way to perceive everything in life," "[i]t makes me view the world differently," and "[i]t is the most important thing for me (besides my family and friends)." One of these students, Hill, who perceived critical thinking as "vital," also offered a more complex or ambivalent view: "The positive part is I stay myself, not a social product. The

negative part is that nonconforming doesn't make one healthy, according to longitudinal studies."

This more conditional or contingent view on the importance of critical thinking was more prominent among students who described it as important—i.e., in some ways but perhaps not in others. For example, Alex wrote: "I think critical thinking is quite important, in that for many things, we actually need to take account of current information and make decisions/arguments about them." Alex's description of the ways in which critical thinking can be useful and important—e.g., for information evaluation, argument construction, and decision-making—aligns with those often mentioned by critical thinking theorists and educators. Yet, interestingly, while these functions seem to warrant critical thinking's vital importance for its proponents, Alex considered them and critical thinking in general to be "quite important."

By contrast, Nathan's response entailed a clearer expression of reservation: "Critical thinking is important for me, but it's not everything. It drives me to think actively and effectively and makes me more incisive. However, critical thinking should not be abused. There's something that cannot be doubted and questioned, or there will be chaos." Also questioning the purported importance of critical thinking but from a different angle, Dio wrote the following:

> If critical thinking means logical thinking, finding evidence to support one's position, then it's not that important to me, because I rely more on my intuition. If critical thinking means independent thinking, then it's something I've been practicing all along. I think everyone's capabilities are different; it may not be important for everyone… Picasso lived a much better life than Van Gogh, but that's because he knew how to sell himself…not because he (Picasso) had greater critical thinking skills, right?

In other words, about a quarter of the participants qualified the significance of critical thinking in their daily practice by suggesting implicitly or explicitly conditions in which it may not be as important as it has been commonly perceived in the literature or espoused in school.

In the interviews, these participants unpacked, as detailed in the earlier chapters, their arguably critical reflections of critical thinking itself. For example, shaped by his quest for meaning and happiness in the last two years in college, Alex concluded that while critical thinking may be important to him in figuring out his existential questions, it may not be important for those who had led a simpler life yet still suffused with meaning and happiness. In Dio's case, in spite of her extraordinary critical thinking capabilities, she found—through numerous experiences and examinations—her intuitive abilities a reliable and more efficient way of knowing, especially about people or situations in everyday life. In addition, while the use of logical thinking and warranted evidence to support one's argumentative position constitute key elements of critical thinking in the academic domain, Dio contended that such criticality is rather "simple/simplified." This is not only because issues in everyday life can be more complex, according to Dio, but also because one can cherry pick even warranted evidence to support a position one wishes to espouse. Dio's critique of critical thinking—i.e., as a way used to strengthen one's bias rather than to gain a more comprehensive understanding by fair consideration of all available ideas and evidence—was also mentioned by other participants, such as Claire, Ray, and Tim.

In fact, the interview data seem to demonstrate that in spite of recognition for the benefits and importance of critical thinking in their lives, more students expressed some reservations about its practice, especially as fostered in the academic domain. As detailed in the group analysis chapter, for example, Audrey expressed doubts for the typically simplified, efficiency-driven, data and statistics oriented critical thinking practiced in solving global problems in her major in the social sciences. In reviewing the adapted list of critical thinking skills and

dispositions identified by Robert Ennis,[263] Audrey responded: "The list is very thinking oriented—it's a lot of things I would do probably, often when I write papers. When I engage in a debate with people, I don't necessary do them as much. I am more attuned to a person's emotional responses." Even though Audrey was aware that emotion can also interfere with one's ability to think rationally and efficiently, she also felt strongly that emotional awareness and empathy should be part of consideration in policy making and real world problem solving.

In other words, participants may consider critical thinking to be very important for them, but the kind of critical thinking they practice often, especially outside of the academic domain, can be quite different from how critical thinking is typically practiced or taught in formal education. On the one hand, some components in the dominant conception of critical thinking—e.g., the rigorous citation or reference to warranted or scholarly evidence—may be practiced less by participants in their everyday life practices. On the other hand, other components not highlighted in the formal conception of critical thinking—e.g., emotional awareness or intelligence—may be added into their daily usage.

Other students also observed certain inconveniences or "disadvantages" that seem to accompany with the practice of critical thinking. For example, Taylor mentioned that thinking critically or comprehensively has made the decision-making more complex and herself feeling "more conflicted" or less decisive at times about making choices. Nevertheless, she still recognized the importance to go through such thinking process, as it has helped her make a more informed choices. Considering the issue from a more interpersonal perspective, Hill observed

[263] Ennis is a prominent figure in the critical thinking movement and literature, see more details in the literature review chapter and Appendix 5.

that while critical thinking has enabled him to pursue his individuality, it has also made him less likely to conform to the norms:

> If you use critical thinking more often, it would be harder to force yourself to conform, because you have made certain choices about what values and priorities to adopt for yourself. Therefore, you may be less inclined to follow what others think or do, because you have evaluated the various options and have come to your own conclusions about them. [Would you then run into conflict with others or with authority?] Uhm, I am not sure about conflict with others, but you would definitely have internal conflicts and experience more challenges along the way.

Keenly aware that his individualistic values and expressions, based on critical examination or thinking, would not as readily supported when he moves back to China for work after graduation, Hill said that he would aim to find "a middle way." That is, he would try to "retain certain aspects of [his] individuality" by being firm on things that are a matter of principle to him (e.g., "mutual respect for personal boundary"), while being willing to compromise and be flexible with others about issues that are less essential to him. In short, like Taylor and other participants who expressed certain reservations in their experiences with using critical thinking across domains, Hill still considered his ability to think critically as something "vital" for "every moment" of his academic and daily life.

(2) Usage

In terms of usage or how frequently participants used critical thinking, most participants' answers in the online questionnaire indicated frequent usage, ranging from "almost every day" and "most of the time" to "on a daily basis," "everywhere," and "all the time." A few students (Alex, Cindy, and Taylor) stated that they used critical thinking "sometimes" or in some situations—e.g., in research, in essay writing, and more frequently in American context than

Chinese context. A couple of students (Dio and Jiayi) expressed that they "don't know" or cannot quite tell when they were using critical thinking or not. While the participants who reported lesser usage also expressed a more conditional view on the importance of critical thinking, the connection between perceived importance and usage does not actually seem to be straightforward as other participants with a conditional view reported or demonstrated frequent usage of critical thinking across domains.

In comparison to the initial online response, what the interview data seem to suggest (as detailed in the individual case and group analysis chapters), is that participants' self-evaluation of their usage of critical thinking depended on their conception of what it means to think critically, which varied in sophistication. For example, Becky reportedly used critical thinking "every day;" however, her conception of critical thinking was partial or limited to essentially logical thinking. By contrast, some students, who could not tell whether they were doing critical thinking, in fact, demonstrated robust critical thinking capabilities in practice. In Dio's case, for example, it was because she did not receive explicit or clear instruction on what "critical thinking" is in formal education, even though she had developed the ability on her own. In addition, particularly among students in Groups II and III, there were issues or domain(s) of issues to which they avoided applying critical thinking, or were inhibited by some strong-yet-unexamined passion or internalized beliefs. This avoidance occurred even while some of these participants believed that they were using critical thinking skills "all the time" or "everywhere."

It may also be interesting to note that a substantial number of participants, particularly female students, also explicitly mentioned that they feel freer and more willing to express their criticality in the U.S. than in China. In other words, while most participants stated that the

sociocultural context (e.g., American vs. Chinese) does not generally affect their application or usage of critical thinking, it did seem to shape significantly their demonstration or expression of critical thoughts in different environments. The quotations below from three different participants (Audrey, Eleanor, and Antonia) explained further why they and others in the Chinese context were less willing to express their critical thinking or opinions:

> I'm not so used to critical thinking in China since the critiques can seldom make a difference in terms of passing on the idea or implementing it, as the social norms in China applaud conformity.
>
> When I was a thinker in China, I can only keep it to myself. The biggest question was about the history of the party and Chinese government. I would read and research things I am interested, but I couldn't find anyone to openly discuss. If I want to find the different side of story, I have to find a special way to access the foreign resources. When I am in the U.S., the transparency was quite an enjoyment at the beginning. Being a critical thinker, I can discuss my opinions on the social platform. I can research different opinions. I can discuss with professors and peers.
>
> I think Chinese people are relatively more implicit [in the way they express themselves], though sometimes they can also be overly direct in a way that can be hurtful. [In general] they can be more reserved about their own thoughts…which is probably related to the sociopolitical climate in China, as the Chinese government asserts tighter control over freedom of speech—there isn't much of that in the public space. Therefore, even though people may have opinions, they won't readily share them with others. Although, I have to say, that people here can also be [reserved about expressing their ideas], in spite of their relative directness. So it's a matter of relative proportion. In China, people would have to know or trust each other well enough to have a deeper discussion.

In other words, in a more open and democratic social/sociopolitical environment, like the U.S., how often people use or apply critical thinking may correspond more closely to how often they express it. By contrast, in a more hierarchical and restrictive social/sociopolitical environment, like China, the correspondence between usage and expression may be much weaker. Yet, as Antonia observed, the difference between how much people expresses their criticality in the U.S. vs. China may be a matter of degree rather than kind. Such differences may also be changing and

diminishing under neoliberal globalization, as people in traditionally democratic countries in the West become more polarized economically, socially and politically, while people in other purportedly non-democratic countries become more individualized and socially and culturally due diversified. The rapid economic development and extensive exposure to the other forms of education, culture, and government through global travel and study, such as those experienced by the transnational Chinese students in this study, may shape the communities they would soon build when they return to China (as most of them intended to do so), making it perhaps more open to expressions of the self and ideas—some of which would invariably be critical.

In short, the usage or mere frequency of participants' critical thinking application may not be as rich and revealing a factor as some of others analyzed earlier—e.g., their varied critical thinking learning pathways, the types or qualities of their conceptions and applications of critical thinking, or even their perceived importance of critical thinking in their daily life. However, its connection to the frequency of students' critical thinking expression may be an interesting pair of factors or contrasts to observe over time for this population and beyond. The connection or contrast between critical thinking usage and expression may be a possible reflection or indication of the nature of the larger social/sociopolitical contexts—e.g., democratic or not in the Deweyan social sense— within which students live and practices critical thinking.

3. Impact of Critical Thinking on Students' Development Across Domains

In light of the above discussion—i.e., on the challenges and changes experienced abroad by the participants, on the one hand, and their usage and perceived importance of critical thinking in their daily life, on the other hand—a connection appears likely between these

students' practice of critical thinking and their significant growth as transnational college students. The following three subsections explore the role of critical thinking in stimulating their development in the academic domain, the sociopolitical domain, and the domain of everyday life.

(1) The academic domain

Despite the limitations to the predominantly logic and argument-centered conception and practice of critical thinking in formal education (as detailed in the earlier chapters and sections), participants' accounts seem to demonstrate a significant and positive impact that critical thinking had on their growth, particularly in the academic domain. Such impact can be manifested at a more structural or mechanical level. For example, as reflected in all participants' experiences, knowing how to think and write critically by the university standard—e.g., entailing demonstration of sound logic, warranted evidence, and/or defensible position of one's own—has enabled them do better academically. In addition, as detailed in Claire's account, a "more systematic" understanding of the structural elements in critical writing helped her construct more persuasive arguments that better reflected her points of view. Such structural understanding of logical argumentation also facilitated students' critical reading abilities, because they could readily identify others' central theses or argumentative positions and analyze how the rest of the text provided sufficient supporting evidence. In other words, knowing the mechanical aspects of critical thinking can help students both examine and construct knowledge claims, which are at the center of academic life in higher education.

The impact of critical thinking can also be manifested at a more epistemic or attitudinal level. For example, Faye, Taylor and other participants also described how critical thinking or "deeper analysis" training in literature and writing courses helped them to see things beyond the surface level and understand that "there's more to it." That is, what seems apparent or merely factual at first may be a complex construction that is motivated by various intentions or that conveys multiple meanings. A number of participants also mentioned how some university courses, particularly in the social sciences and humanities, offered refreshing perspectives or knowledge on subject matters that were already familiar and originally mundane to them.

One popular undergraduate course on Chinese history, for instance, was frequently mentioned by participants, because it presented historical events not in a chronological order (something that participants were familiar with from the Chinese educational system) but from a more analytical perspective, analyzing the underlying intellectual forces or ideas that had shaped historical events and may continue to be relevant for future events. As Dio reflected, "it gave me a new understanding of history—not just about the *what* but also the *how* and *why*." In addition, by presenting different views on key historical figures, divergent from what participants had been taught in China, and by having students present their own defensible evaluations of historical figures, some of the students also gained a clearer understanding of the ideological framework that had shaped their earlier perceptions. As a result, they could now reevaluate and formulate their own interpretations through different and more balanced perspectives. In other words, as participants' views of history or reality became less absolute and more complex, their epistemic position, along with their sense of agency as not only knowledge consumer but creator, also became strengthened.

In short, understanding how to think and write critically was essential for participants to succeed academically. Moreover, the various exposure to and practice of critical thinking also fostered a more active learning style and greater sense of agency and participation in the construction and application of knowledge processes. As Dewey argued in *Democracy and Education,* democracy should invariably entail education that is communicative, participatory, and co-constructive, it may be argued that what the participants were experiencing is not only critical thinking and growth in the academic domain but also a latent democratizing process that prepares individuals for further participation in a democracy.

(2) The sociopolitical domain

As detailed in the group analysis chapter, substantial changes or development in the sociopolitical domain were also visible among some participants, especially those who demonstrated more robust conceptions and practices of critical thinking across domains. For example, Alex, who was initially indifferent to politics and news, demonstrated a more engaged and questioning attitude after taking an anthropology course on contemporary Chinese society and became more aware of how events in China were tightly regulated by political ideologies and motivations. In Joanna's case, exposure to the feminist movements in the U.S. through a gender studies course made her more aware of individual agency in making positive changes. She became committed to use her voice or whatever capacity she had at a given time to making progressive improvements, such as actively participating in providing course feedback and communicating her perspective with others in class or outside. Perhaps due to the early influence of her father, who was a Chinese government official and who had actively fostered her

sense of connection with village life in their ancestral hometown, Joanna quickly perceived the relevance of critical thinking to the quality of everyday life and collective decision-making for people everywhere—whether they live in a political democracy or not. In other words, exposure to the concept and practice of critical thinking in college seemed to provide Joanna an effective tool with which she could exercise her agency and capacity to make positive changes.

In contrast to Alex's nascent sociopolitical consciousness and Joanna's committed yet relatively moderate and reformist approach to necessary sociopolitical changes (e.g., greater gender equality in China), Eleanor adopted a more explicit, activist stance on sociopolitical issues that she became passionate about after moving to the U.S. As detailed in her analysis earlier, Eleanor became keenly aware of racial hierarchy and its harmful effect on racial minorities, such as herself, in the States, especially when she quit school and worked within an isolating immigrant community for a number of years. According to Eleanor, her decision to return to school for higher education and desire to advocate for disadvantaged immigrant populations were a result of critical thinking and critical theories. She was able to identify structural issues that had shaped her experiences of marginalization in the U.S. as well as her agency in changing social perceptions and policies around Asian Americans immigrants.

In other words, participants demonstrated a spectrum of varied levels or types of sociopolitical engagement, ranging from budding awareness to firm commitment and concrete activism. While literature of the critical thinking movement seems to suggest a trend towards increasing political commitment and activism (see details in the literature review chapter), participants' varied growths in the sociopolitical domain indicate differences that are all worthy of respect in their own right. For example, while Alex may not be sociopolitically engaged in the

activist sense, his awareness of political control over people's liberty—along with his desire to make engineering products that can increase people's sense of connectivity and wellbeing—may still lead to important contributions toward improving social structure and quality of life. In addition, Joanna's seemingly more moderate approach versus Eleanor's more radical/activist stance in the sociopolitical domain may also be perceived as different means to making effective changes in varied sociopolitical contexts. That is, while the liberal democratic context in the U.S. permits or encourages strong expressions of political activism, such explicit activism would not work as well in the more autocratic Chinese context. Therefore, for people who are committed to making necessary changes in China, more gradual and implicit means of sociopolitical engagement would be explored and utilized.

It is worth noting that in comparison to changes and growth in the academic and personal domains, participants' development in the sociopolitical domain appeared to be, in general, less substantial. Critical thinking was also less frequently applied to issues in the sociopolitical domain by most participants. For example, some participants (e.g., Cindy and Jiayi), as analyzed in the earlier chapters, were reluctant to explore larger issues that could mean challenging Chinese political and/or familial authorities—both of which can be intimidating and thus undesirable for individuals to confront, unless absolutely necessary. By contrast, a few students did become more critical of the Chinese political system as they were exposed to knowledge or information that was not available to them before, or as they became more alarmed by the increasing social and political censorship in China under president Xi's leadership. Yet, by and large, many more participants seemed to develop an increasingly ambivalent view of the American sociopolitical system, after witnessing its chaotic elements in the recent years while abroad. As a result, they

gained greater appreciation or tolerance for the Chinese sociopolitical system, asserting that, though imperfect, the Chinese government has been successful and effective in transforming a larger country from poverty to its current state of prosperity. As the majority of participants intended to eventually return to China, they felt optimistic for China. From their view, while Chinese citizens do not have the same level of political participation or freedom as American citizens, they do enjoy an unprecedented amount of physical mobility, economic freedom, and social security in the personal domain to pursue their individual ambitions and dreams.

(3) The personal domain

In the personal domain or domain of everyday life, participants seemed to demonstrate the most substantial challenges and growth as well as the most frequent usage of their critical thinking abilities. As their applications of critical thinking in this domain and growth in the intrapersonal and interpersonal dimensions have been extensively analyzed in the earlier sections and chapters, the following highlights, in brief, some of the key takeaways on how critical thinking might have contributed to their personal development.

For example, almost all participants described applying critical thinking to making important decisions, such as what academic major or career trajectory to pursue. Students demonstrating strong critical thinking capabilities were not only able to make informed decisions by drawing information from relevant and varied sources but also were able to incorporate their knowledge about themselves in the process. As a result, these strong critical thinkers were also able to choose paths that were more internally defined and right for themselves.

In a related way, this expansive yet affirmational focus on the self through the practice of critical thinking also seemed to contribute to other internal changes within the participants. For example, many participants reported changes in values, shifting toward values that are more liberal and individualistic. The majority of participants also noticed changes in their self-perceptions, observing that they started to value themselves and became more confident and independent than before. In some cases (e.g., Claire, Joanna, and Hill), conscious examinations of the norms they had previously imbibed, in light of what they saw abroad as “healthier” ways of being and perceiving oneself, led to a decided change in how they related to themselves—in a more accepting, committed, and affirmational way. Perhaps in connection to these intrapersonal changes, many participants also felt interpersonal changes: while they saw the virtue in having greater mutual respect toward people as individuals, they also became more empathetic and appreciative of others who might be different.

Interestingly, participants did not always recognize that this personal growth was a result of their exposure to or practice of critical thinking, or even their cross-cultural education. Some of this lack of recognition seemed to stem from, on the one hand, the difficulty in connecting the complex and nebulous thought process with internal changes, and on the other hand, the ambiguity about what constitutes “critical thinking,” as reported by a significant proportion of participants. In addition, while some participants felt that these personal growth might just be a natural part of their development or maturation toward adulthood, others suggested that interactions with friends or role models—American and/or Chinese—might have had more immediate impact on the changes they experienced.

Granted, the impact of friendship or social interaction may lend powerful support to individuals' changes or transformations in a way that mere rational or critical thinking cannot. Many of the participants' experiences (e.g., Claire, Joanna, Alex, and Hill) as analyzed earlier seemed to demonstrate the socioemotional power in fostering intrapersonal changes. At the same time, these cases also seemed to suggest that active or critical thinking has paved the ground for significant intrapersonal changes to take place. That is, through critical thinking, these participants explored and examined as much as they could rationally and were ready, as a result, for the necessary leap under optimal circumstances or encouragement. In addition, the connection between robust critical thinking capabilities and strong selfhood, as demonstrated by Group I students, suggests a complementary relationship between critical thinking and self-development. This mutually strengthening connection between selfhood and critical thinking seems to support the claim that critical thinking played a vital role in students' overall personal development or maturation.

Chapter 8. Conclusion

In this short conclusion chapter, I will situate the study participants in a larger historical context of Chinese students abroad to highlight characteristics that may be unique of this new generation of Chinese youth who grew up in an era of globalization. In addition, I will sketch the connection between the empirical findings from the study and the theoretical lenses that have shaped the dissertation since its conception. By juxtaposing the findings with the theories, new insights might be further uncovered about the theories in cross-cultural contexts as well as the experiences and challenges of these transnational Chinese students and their cultured selfhood. The third section provides a brief account of why a good reference point for reconceptualization of critical thinking may be found in Dewey's vision of education in and for democracy; more discussion on the reconceptualization question can be found in Chapter 5. This chapter ends with a short description on the potential significance and limitation of this dissertation project.

1. Changing Pursuits Across Generations: Situating Participants' Stories in the Larger Context

In her seminal ethnography (2011) titled *Paradise redefined: Transnational Chinese students and the quest for flexible citizenship in the developed world,* Vanessa Fong followed hundreds of Chinese youths, born in the 80s, over a decade in their journeys abroad. Having taught these youths in the late 90s, Fong recounted her surprise at the unanticipatedly large number of students from average academic and social economic backgrounds who would manage to pursue education overseas. She called this new wave of transnational Chinese students a generation "born and raised to rise to the top of the global neoliberal system" (p. 142).

Almost all of her participants were urban Chinese singletons, born after China's one-child policy took effect in 1979. Growing up at a time when China had just joined the WTO in hopes of becoming part of the developed world, they were inundated with images of the West as "paradise." They were also "socialized to aspire to developed world citizenship" (p. 71), meaning cultural, social, and/or legal citizenship from the developed world. It was believed that with this form of citizenship, one could enjoy freedoms and high standard of living anywhere in the age of globalization, even in a developing country like China. To achieve this transnational dream promised by the global neoliberal system,[264] these Chinese youths and their families of average means were willing to take great financial and personal risks for almost any opportunities available overseas. Education abroad was perceived as the most viable way. Yet lacking an informed understanding of the world outside of China and the myriad of unanticipated academic and personal challenges abroad, many of these students experienced "unanticipated suffering, ambivalence, and disappointment" (p. 268) and "ended up floating at the margins of both China and the developed world" (p. 205).

In contrast to the earlier generation[265] inculcated with aspirations *for* the global neoliberal system, today's Chinese youths seem to have grown up with benefits *from* the global neoliberal system of which China has now become a key player. Born in the 90s, the current generation of transnational Chinese students knows a great deal more about how to navigate the

[264] Fong (2011) explained that "the global neoliberal system resembles the capitalist world system that gave birth to it but locates itself more in the bodies of disciplined, deterritorializable individuals than in particular regions or nation-states" (p. 21).

[265] While the common understanding and dictionary definition for "generation" in English refers denotes a span of about 30 years, the common usage of "generation" or 一代 in Chinese typically refers to about 10 years, because Chinese society has been changing so rapidly in the past few decades that the generational gap or differences are already substantial among people born in a decade or half a decade apart.

educational and social systems abroad. Many of them seem to be well-informed, taking advantage, for example, of the community college system in the U.S. as a more accessible route to competitive and expensive 4-year universities. With the influx of information from books and social media, they also know better that the developed Western world is not a mere "paradise" with pristine beaches, clean air, and social benefits; there are significant social problems in developed countries and particular disadvantages for them as a racial minority.

Also, in comparison to the previous generation coming from average middle-class Chinese families, today's Chinese students from families of a comparable socio-economic stratum also enjoy significantly better financial support and academic preparation for life and learning overseas. Studying abroad has become a much more viable option financially for China's rising middle class in the recent decade. With considerably more spending power, especially among youths from urban families, many were able to afford short-term traveling or studying experiences in various countries before settling in the U.S. for college. Their greater likelihood of succeeding abroad has also been aided by the evolving educational infrastructures in China in the recent decade. Jiayi's experience at the international program within a prestigious public high school or Audrey's description of her boarding school that fuses Confucian concepts with British A-level curriculum are some of the examples. In both cases, the advanced curriculum and abundant extracurricular opportunities offered at the schools were streamlined to prepare students for top universities around the world, and they bore greater resemblance to elite private schools in the U.S. than typical public schools in China. Such educational pathways are becoming increasingly popular as alternatives to the traditional Chinese schools that prepare students for the *Gaokao,* i.e. a high-stake two-day college entrance exam that is given nationally only once a

year.[266] In this study, for instance, the majority of participants who came directly from China after high school to the U.S. for higher education (i.e. excluding students who were immigrants before college or were transferred from community colleges) had enrolled in one of these emergent international schools or international programs within public high schools. Despite the varying quality of these nascent programs, they all provide some form of preparation for Chinese youths seeking educational opportunities outside of China.

Moreover, qualities of life that had to be obtained by venturing abroad for the previous generation of transnational Chinese are now enjoyed as part of their birthright by many Chinese youth, especially those from the urban centers. With the greater abundance of material comfort,

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[266] *Gaokao* is a high-stake test because to ensure a high score on the test, students on the regular *Gaokao* track had to give up extracurricular interests early in high school and spend long hours reviewing numerous academic subjects and doing practice exams. How well they perform on the exam impact directly the kinds of universities, majors, and career trajectories—in short, life qualities—they will have in the future. Apart from the draining mental and physical preparation process, the *Gaokao* is highly stressful process for both students and their families also in terms of the precarious uncertainty after the exam. This is because one has to not only get an exceptional high score on the exam but also be sufficiently informed and lucky in the way one chooses a university and major. For example, if a lot of students in a particular year happen to choose a particular major—e.g. medicine, engineering, and finance—or a university, even if one's score is sufficient high according to past enrollment criteria, one may not get into the major and thus lose the one chance to get into a top-tier university altogether. As a result, one would automatically be placed, punishingly, into the category of second-tier universities.

The *Gaokao* can be additional unfair for those outside of Beijing and Shanghai where students receive preferential treatments—i.e. access to the best universities in these cities or the country with significantly lower test scores. While proponents of the Chinese education system argue that this exam has provided countless number of students from lower social economic background a rare chance to receive good education and thus opportunities for social mobility, the exam is still unfair for the vast majority of students, especially those from already disadvantaged rural background where schools often lack quality educational resources and teaching staff.

Given these circumstances around the *Gaokao*, the alternative investment in preparing for an education abroad seems to be a less volatile, less stressful, and more opportune option. In fact, sending children abroad has become a new fad among Chinese parents who have the financial means to do so. In addition to bypass the *Gaokao,* an education abroad comes with many added values: e.g. chance to improve English as a useful tool in the age of global economy, possibilities to grow a wider and more varied social network for upward mobility, and opportunities to receive quality education or more reputable degrees. Currently, there are only a few universities in China that have made to the top world university rankings.

As reflected in this study, a good number of students mentioned that their decisions to study abroad—whether initiated by their parents and/or by themselves—has been motivated by the intimidating process of the *Gaokao,* the angst of being placed into a second-tier university due to their underperformance during the exam, or the disadvantageous implications embedded within the *Gaokao* system for them as students of rural background.

increased physical and social mobility, and expanding opportunities for entrepreneurship and professional development, the option for returning and remaining in China has also become increasingly attractive for the young and ambitious. It can be argued, therefore, that the desire to obtain flexible citizenship as a means to lead a prosperous life is less urgently or consciously pursued among the increasingly privileged and well-informed Chinese youths today.

Instead, as this study found, at least a portion of today's transnational Chinese students might be faced with a different kind of quest—one that is less uniformly defined and easily articulable. If the earlier generation can be said to have purposefully sought to optimize *conditions of happiness*[267]—i.e. credentials and skills that could help to secure financial prosperity and social prestige—by venturing overseas, then the current generation can be described as finding themselves, sometimes unexpectedly, seeking the *substance of happiness*—i.e. the *what* that can make them happy—while studying abroad.[268] For example, Alex reflected that the most pivotal change for him in college was when his interest as an engineering student started to shift from knowing *how* to create to wondering *what* to create. The latter question of *what* propelled him to take a deeper look at himself, connecting to a host of other existential questions also new to him: *What is happiness? Will getting more credentials and prestige—in the way that he was inculcated to believe—secure happiness? If these material conditions cannot provide lasting happiness, then what could he pursue that would make him genuinely happy?* Such questions

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[267] Scholars have also used the pair of terms "instrumental" (values, e.g., economic prosperity) vs. "ultimate" (values, e.g., human flourishing and wellbeing) to suggest the distinction that I'm trying to make here by using the terms "conditions" and "substance" (of happiness).

[268] The changing desire between the generations perhaps is a direct consequence of the improved material conditions in China, and the quest for a more expressive and fulfilling life is a natural extension of the pursuit for basic security and prosperity being fulfilled.

surfaced again and again in the data, though framed in slightly different ways by the various participants.

The orientation of these questions suggest, arguably, that while the pursuit of prosperity, security, and prestige may still constitute the initial motivation for studying abroad among many transnational Chinese students today, at least some of them experienced a gradual shift in their aspirations towards internal motivations: personal growth, self-understanding, meaning-making, and a more authentic selfhood. For this significant shift to happen, their previous values and assumptions were called into question, albeit to varied extent. At the same time, they would also need to seek answers that are more genuine or true to who they are and what they really believe. This process of change and inquiry marks perhaps the beginning of "an examined life"[269]—a motto attributed to Socrates, whose dialogical method for examining assumptions and claims became the earliest progenitor of the critical thinking movement in education.

2. Dialogue between empirical findings and theoretical lenses

While the search for meaning or examined life can entail a deconstructive process that unsettles deeply entrenched assumptions and beliefs that one had once embraced, it may also provide the necessary "cognitive dissonance"[270] or stimuli for learning and growth. From the

[269] The actual motto allegedly spoken by Socrates was "the unexamined life is not worth living." It appeared in Plato's *Apology*, when Socrates was defending his dialogical teaching during his persecution trial for impiety and corrupting the Athenian youth.

[270] "Cognitive dissonance" is a concept that occurs often in psychological literature, such as in the "self-authorship" literature. According to Britannica, the concept refers "to the mental conflict that occurs when beliefs or assumptions are contradicted by new information. The unease or tension that the conflict arouses in people is relieved by one of several defensive maneuvers: they reject, explain away, or avoid the new information; persuade themselves that no conflict really exists; reconcile the differences; or resort to any other defensive means of preserving stability or order in their conceptions of the world and of themselves."

perspective of constructive developmental psychology—one of the three theoretical lenses used in this research project—with an optimal level of challenge and the right types of support, a person who experiences mental dissonances can develop a holistic meaning-making capacity called "self-authorship." The concept refers to the ability to "internally define a coherent belief system and identity that coordinates engagement in mutual relations within the larger world" (Baxter Magolda, 2004, p. xxii). A self-authored individual would demonstrate maturation in all three dimensions—intrapersonal, interpersonal, cognitive/epistemic—as these dimension are known to be interconnected and develop in a synergistic or synchronistic way based on empirical studies (Baxter Magolda, 2010; King, 2010). That is, no one dimension can develop into a more advanced stage of maturity without similar level of development of the other two dimensions. As the three dimensions develop in sync, educational psychologists working with the self-authorship model have often advocated greater effort in higher education for fostering not only students' academic competencies but also growth in the interpersonal and intrapersonal dimensions that are also necessary for developing "the internal capacity to define one's beliefs, identity, and relations with others" (Baxter Magolda & King, 2004, p.8).

This recommendation from educational psychologists for a more holistic approach to higher education that incorporates the goal of self-authorship into traditional curriculum (Baxter Magolda & King, 2004) is arguably echoed by the experiences and reflections of the study participants in a number of different ways. For example, by virtue of their transnational/cross-cultural background, these students reported experiences of significant cognitive dissonances,

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stemming from the conflicting cultural, value, and ideological differences they experience between the U.S. and China. In addition, in the face of sudden freedom, options, and responsibilities they experience abroad—the extent to which they had not experienced while growing up in China—many also expressed strong desire for better understanding the self and their individualities with which they can better guide themselves with "self-leadership" (a term Hill used that seems to echo the concept of "self-authorship").

At the same time, the theme of selfhood emerged from this research project may also add something different, from the perspective of transnational Chinese students, to the theory of "self-authorship" (which was formulated based on studies of domestic/American undergraduate population). As evident in these participants' stories, for example, a robust development of critical thinking necessitates an affirmational attitude toward the self that is at the same time curious and open to differences, changes and constructive adjustment or improvement. This balanced affirmational and open attitude, which is largely taken for granted in the literature and in the generally more liberal American context, may also be the foundation for self-authorship as an internal capacity to define one's values, belief system, and relations with others—all of which requires critical thinking in the broad sense or in the personal domain.

In addition, what constitutes "self-authorship" or how one defines internally what is important for oneself in the Chinese context may also look different in the American context, both of which these students may straddle. As the connection with their parents and their mutual interdependency is frequently highlighted by students, self-authorship in these students' practices may entail more complex negotiation and/or justification, if not also compromises, with these others who play an important—almost integral—role in their sense of self and wellbeing.

In other words, the familiar or familial other may remain important for these students, even as they become more independent as individuals in the global age.

Individuals like the transnational Chinese students may also be experiencing a more intensified version of "individualization," a sociological concept used by Beck and Giddens (1994) to characterize the experience of being an individual in the late modern or global age. That is, not only are individuals frequently disembedded from traditional societies and ways of life by the forces of late modernity—globalization, technology, mass mobility— but also individuals have become the basic unit of productivity known for its value as human capital in the new knowledge economy. While the individual in late modernity may have more opportunities and choices, they are also exposed greater risks and uncertainty. This is because individuals in the late modern era have to constantly make decisions big and small, often on their own, and without both the constrains and protections from traditional societies. There is also, as Lash (2002) observed, "neither the time nor the space to reflect" on one's decisions in fast-paced world (p. ix).

The awareness of having to become such individuals—self-disciplined, entrepreneurial, and capable of navigating the complex global world—is salient, albeit largely implicit, in many of the participants' responses and desire to acquire a diverse range of experiences, knowledge, and skills while abroad. In addition, the growing disembedment from the world in which they had grown up or their parents' more traditional world is also prevalent and sometimes poignant (e.g. Claire's case). These students' individualization process appeared more intense because filial piety, as Hill mentioned, is a "categorical responsibility" in Chinese culture; therefore, having conflicting values and worldviews from one's parents can lead to intense internal conflicts within

the self. Yet, the exposures to vastly different cultural norms, belief systems, and daily practices in the U.S., as many participants noted, invariably lead to conflicting views and preferences.

While participants have largely dealt with these conflicts on their own—explaining that familial or internal conflicts can be too private or difficult to discuss with others—these seemingly private or familial conflicts arguably reflect larger sociopolitical, cultural, ideological differences across countries and communities that have come in closer physical and economic contact with one another in the global age. Therefore, it seems reasonable that there should be more educational support for individuals like these transnational Chinese students, so that they can better process these conflicting pulls and "re-embed," as one must, according to Beck (1994), into a coherent and individualized biographies or sense of self in an era where the self has a tendency in general, regardless of one's sociocultural identity, to "become fragmented into contradictory discourse of the self" (p. 7).

3. Reconceptualization of Critical Thinking: A More Holistic Approach

In light of the necessity and challenges of becoming an individual in late modernity, critical thinking should be revitalized and reconceptualized as a tool for self-development and problem-solving in everyday life. This is especially for students like participants in this study, who have to cross numerous boundaries (e.g., geopolitical and cultural), the process of individualization and constructing a coherence sense of self may be particularly complex. In other words, the dominant logic and argument-centered conception and practice of critical thinking has to expand, and how critical thinking can be applied across domains needs to be better understood and fostered in education.

Questions or problems in everyday life can be complex and difficult, because they constitute a category of "ill-structured problems" that "cannot be described with a high degree of completeness or solved with a high degree of certainty" (King & Kitchener, 1994, p. 10). A seemingly simple question of what academic major to pursue may be connected to a host of larger questions that are existential and moral: *What kind of life do I want to live, who am I, what do I value, and why, etc.* Such "ill-structured" questions are not only in the purview of critical thinking in the broad sense, as practiced by its earlier progenitors in philosophy (e.g., Socrates and Dewey), but indispensable for any individual with a certain amount of freedom and responsibility to lead a life of one's own.

Granted, such questions in the everyday life may be considered too mundane, personal, and unconventional for the purview of formal education. Educational institutions, particularly higher education, have traditionally prioritized academic learning and research. Yet, education, as envisioned by Dewey (2012 [1916]), has the duty to act as "a steadying and integrating office" for students who are increasingly "subjected to antagonistic pulls and [are] in danger of being split" in the process of traversing different environments and facing different standards, cultures, and ideas (p. 26). Arguably, this vision of education may be even more relevant for today's rapidly changing, late modern world.

A holistic reconceptualization of critical thinking can draw inspirations from Dewey's philosophy of education, for the following reasons. First, Dewey's vision of education is holistic in that he saw schools as a site that can "co-ordinate the psychological and social factors" (Biesta, 2006, p. 29) and serve as a "steadying and integrating office" for students who will have to respond, one day as adults, to the potentially conflicting needs of their own as unique individuals

and of their larger societies. How to help students understand, communicate, and negotiate these contending pulls with both a sense of agency and openness seems to require a kind of thinking that goes beyond traditional academic learning.

Second, Dewey's "reflective thinking" as explicated in his seminal work *Democracy and Education,* may be particularly relevant for a more holistic reconsideration of critical thinking, because "reflective thinking" is arguably a fuller development of his concept "critical thinking." While the progressive educational movement and the later critical thinking movement adopted Dewey's concept of "critical thinking," used interchangeably with "reflective thinking" in his earlier work, was developed later a more robust concept of "reflective thinking" or "reflective experience" in *Democracy and Education* (see more details in the literature review chapter). As conveyed in this later set of interchangeable terms by Dewey—"reflective thinking" and "reflective experience"—*thinking* and *experience* are inextricably linked in Dewey's philosophy of education. In other words, reflective or critical thinking in Dewey's vision deals not only with mere abstract concepts or argumentations but also, perhaps more importantly, with one's interactions with the experiential world—physical and/or social. Therefore, issues stemming from the everyday life experiences and the sociopolitical domain would be topics of inquiry just as valuable as those in the more abstract academic domain.

Third, data in this empirical study seem to support or verify key concepts in *Democracy and Education*, suggesting that Dewey's overall philosophy or vision of education can be a relevant and useful source for a more inclusive reconceptualization of critical thinking for students of diverse backgrounds. For example, his emphasis on "education" in the broad sense—not only in the "formal" setting (e.g., schools) but also in the "informal" sense (e.g. families and

communities)—is echoes by many participants' assertions that they developed critical thinking through means and efforts outside of formal education. With reference to critical thinking education, this does not mean that formal education is not important, but rather, it has to provide, in substance, a kind of teaching or pedagogical environment that is "participatory" rather than "mechanical." Such educative environment, formal or informal, would also be "democratic" in the Dewey sense, which refers to a way of life or association with others that is "communicative" in the genuine sense—allowing the expansion of the self in light of the other and the sharing of experiences that builds common ground.

Granted, some may contend that Dewey's holistic vision of education may be more applicable for educating the young—students at the primary or secondary level—as much of his philosophical theories may have been built upon his observations of the psychology of the young. While it may be ideal to practice a holistic educational approach with students at an earlier age, the progressive educational movement based on Dewey's work has long dissipated, and few schools, especially in the age of increasing educational measurement and accountability, may still operate on the progressive education model. If students arrive in college not having developed the full abilities to understand their experiences and know how to improve them by applying reflective or critical thinking, then a reconceptualization of critical thinking for higher education based on Dewey's model may prove to be beneficial for these students. As reflected in the transnational Chinese students' experiences in this study, there has been an increasingly diversifying student population in American higher education. Moreover, as many students today are enjoying unprecedent mobility and exposure to contending ideas and practices, developing an effective way to process—be it called "reflective" or "critical" thinking—complex

yet individualized experiences can be vital for their sense of wellbeing and productivity across domains.

Granted also, one may argue that since Dewey's philosophy of education—of which his concept of critical/reflective thinking is a part—is situated in and for the maintenance of democracy or a democratic society. As such, the Deweyan vision may not be well-suited for a reconceptualization of critical thinking in the global age that aims to be applicable to a diverse range of student populations in both democratic and non-democratic countries. Yet, by "democracy," Dewey foregrounds its social rather than political dimension for reasons that he (1997 [1939]) explains in the following quotation:

> Merely legal guarantees of the civil liberties of free belief, free expression, free assembly are of little avail if in daily life freedom of communication, the give and take of ideas, facts, experiences, is choked by mutual suspicion, by abuse, by fear and hatred. These things destroy the essential conditions of the democratic way of living even more eventually than open coercion… (p. 227-228).

Dewey's analysis seems to suggest that perceiving democracy only in the political sense would not only be insufficient but also misleading about "the actual practices and conditions of a society—democratic or authoritarian" (Xie, 2020, p. 39). By prioritizing the social dimension of democracy—as manifested, for example, in how people communicate and interact with one another—Dewey proposes a seemingly mundane yet an arguably effective and radical way for people to identify, cultivate, and/or safeguard democracy or the democratic spirit through their actions in everyday life. In other words, democracy in the Deweyan sense may be relevant for many more people across different countries and political systems. Along this line, Dewey's conception of reflective/critical thinking as an integral part of his larger project for democracy would also be pertinent for an inclusive reconceptualization of critical thinking for the global age.

In addition, if *democracy*, from Dewey's perspective, can be described beyond its basic, political mechanisms as "primarily a mode of associated living, of conjoint communicative experience," then *critical thinking* may also be conceptualized beyond its basic, logical/rational aspect. Critical thinking may be characterized as a way of experiencing life that simultaneously affirms and expands oneself, that both questions and creates existing knowledge, and that is not afraid to challenge or support others for what seems to be the better truth, purpose, or practice. Beyond these tentatively described essential characteristics or spirit, critical thinking's mode of expression—in the form of logical deduction, persuasive argumentation, or artistic presentation—may vary among individuals and groups, in different situations or contexts, and to varying extents.

Just as no one democratic government may be perfect and no two democracies may be the same, according to Dewey (Tan, 2011), it also seems likely that critical thinking in different sociocultural/sociopolitical contexts or for different populations of users may vary—beyond its basic characteristics. As evidenced in this dissertation, the practice of critical thinking among transnational Chinese students demonstrated a greater focus on the domain of everyday life, where challenges and needs seemed be most salient and pressing in this domain. Consequently, elements that are not typically mentioned in the dominant conception of critical thinking or its practice in the academic domain were highlighted by the participants: e.g., the role of the non-rational dimension, sensitivity toward others' emotions, and perception or attitude toward oneself.

Interestingly, many of these additional components practiced by the participants have been proposed by the more recent critical thinking theorists of feminist and/or postmodern

background. Therefore, a future project can extend this study on transnational Chinese students with data from American students studying in the U.S. or abroad. By comparing different student populations in terms of how they practice critical thinking across domains, a more robust and useful reconceptualization may come to the fore on what critical thinking is and how it should be better taught in our current times.

4. Significance & Limitation

This dissertation seeks to contribute to the existing literatures on critical thinking in several ways: First, as an empirical study, the project experiments with a holistic and interdisciplinary framework and provides a detailed qualitative account of a more recent generation of Chinese students abroad (i.e., born in the 1990s), which helps to update earlier perceptions in the literature on international/transnational Chinese students' overall experiences abroad and with critical thinking in particular. Second, at the conceptual level, the project brings a peripheral, cross-cultural, yet global perspective to the central debates on critical thinking that is largely located in the West and in the U.S. in particular. That is, by demonstrating elements from the participants' perspectives and applications of critical thinking that might be cross-cultural, the dissertation provides suggestions on how the prevailing conception of critical thinking may be further expanded or reconceptualized. Third, at the pedagogical and developmental level, the dissertation also draws upon students' reflections of their experiences and practices of critical thinking and discusses teaching and learning strategies that may best facilitate students' critical thinking and overall development. In other words, findings and discussions from this dissertation project may be an interest to educational theorists and

practitioners as well as students who wish to further cultivate critical thinking in a way that is beneficial across wider domains.

The generalizability of the findings from the research may be limited, however, by the self-selected group of transnational Chinese students who participated in the study. Even though they represented a wide range of educational, socioeconomic, regional backgrounds, they were all upper-division college students at a highly selective research university in the U.S. Therefore, the question of how representative their accounts and demonstrations of critical thinking are for the larger transnational Chinese student population requires further research. In addition, while the study focuses extensively on the theoretical debates and conceptualization of critical thinking in the literature review, it does not include a detailed review of critical thinking textbooks, courses, and assessment tools that have also played an important role in the popularization of critical thinking. A juxtaposition of the various perspectives on critical thinking—i.e., from the theorists, the students, and the educational practitioners at the local and global levels—may engender an even more balanced and intriguing conversation that can further democratize the teaching of critical thinking as a fundamentally, though not always practiced as such, democratizing agent in itself.

Epilogue

As I reach the end of this prolonged dissertation writing process in the summer of 2022, I want to take a moment to look back at the time, between the Fall of 2017 and Spring 2018, when I was conducting interviews and collecting data for this research project. The world was arguably operating in a different mood, as reflected in the general optimism expressed by the participants and the rapidly increasing number of Chinese students in the U.S. (over 363,000 students in the 2017-2018 academic year). Yet, numerous sociocultural and geopolitical changes were also beginning to emerge around that time, which escalated tensions within the domestic and international spheres over the past few years.

In China, the two-term limit on China's president was removed during the 19th National Congress of the Chinese Community Party (CCP) in the Fall of 2017, allowing President Xi to rule indefinitely. What has taken place in China since then, as Kevin Rudd (2022) observed, is a decidedly more regulatory turn in the way CCP now governs the Chinese economy and society, marking a significant break from its more moderate and liberal governance over the past four decades. In other word, 2017 may have been a watershed moment for China—an end of its reform era since the late 1970s, and the beginning of a return to a more restrictive and ideological era in its domestic affairs, on the one hand, and its more assertive and contentious expansion of influence in global affairs, on the other hand.

Meanwhile, in the U.S., growing economic disparity between the rich and poor, compounded with increasing social and political divisions, has come to sharper focus since the Trump presidency (2016-2020). The pervasive sense of ideological and social mistrust among

citizens of different political beliefs has posed serious challenges to the necessary communication and effective operation of a democratic society—as Dewey uncannily observed or foresaw in the quotation mentioned earlier, warning the danger of "mutual suspicion," "abuse," "fear and hatred" more lethal to democracy than "open coercion." In light of deeply trenchant domestic problems, the rise of an ambitious China under Xi as a global superpower has been viewed with increasing suspicion, if not open hostility, in American politics since 2018.

These concerning events were then followed by the global COVID pandemic since the end of 2019, and more recently, by the war in Ukraine in 2022, effecting virtually everyone to varying extents and with long-term consequences yet to come. As a fellow doctoral candidate reflected in our Zoom conversation at the wake of COVID, which was beginning to alter significantly the way we live and interact with one another, "it feels as if what I had written (his dissertation on urban humanities) is no longer relevant for what we are experiencing or how education will operate in the future." Perhaps the same can be said about this research project. Findings from this dissertation are based on accounts of participants who had grown up in an arguably different—reform era—China and looked forward to a global world that was perhaps at its height of peace and prosperity. Moreover, while the holistic reconceptualization of critical thinking suggested by the dissertation invariably assumed sociopolitical stability that would allow individuals to explore and develop their individuality, the numerous turn of events seem to suggest greater instability in the future ahead.

Yet, if we look further back in history, for example, the tumultuous history of contemporary China since the Opium Wars in the mid-19th century, we may see that optimism is still not far below the surface. This is because the Opium Wars marked the beginning of a long

history of foreign military invasions of China and, shortly after that, an influx of Western cultural influences that has since both elevated and oppressed the Chinese psyche. In comparison to earlier generations who had either repelled Western culture as something foreign or embraced it at the expensive of abandoning Chinese culture as something inferior, it seems that the Chinese people, as reflected in this younger generation of students' cross-cultural journey, have come a long way in reaching a state of reflective confidence where they feel confident enough in their culture identity while remaining open to learning from others in strive for the better. This modest yet self-assured attitude was evidenced in many of these students' conceptions and practices of critical thinking for supporting their own growth and for possibly making a difference in China and beyond. These students' abilities to think critically, to express their ideas, and to care for themselves and for others, gave me a sense of encouraging hopefulness during our encounter through the dissertation project.

Granted, in retrospect, this sense of hopefulness had perhaps only a short window of time to blossom, which may be now suspended temporarily or indefinitely due to the drastic changes in the recent years. However, for their experiences with critical thinking—and, more broadly, with studying abroad in the U.S.—to have had a meaningful impact in their overall development, the seed of hope or optimism is still there and will blossom in better times or more optimal circumstances. Meanwhile, I hope we—educators and practitioners (i.e., teachers or students) who have benefited from the spirit of critical thinking and democratic association will continue our daily practice and foster it with even greater care, within ourselves and within others, in trying times. As Ennis (2011a) pointed out, the popularity of teaching critical thinking has ebbed and flowed, depending on the changing sociopolitical circumstances. Critical thinking education

may be heading for a time of greater uncertainty, which may also be the time when people's daily practice of critical thinking—especially in a more inclusive and holistic sense—become more urgently necessary.

Appendices

1. Motivation for the Research

This dissertation project on critical thinking in American higher education, and its role in shaping transnational Chinese students' overall development, stems from my own experience as a member of this group, back when China and the U.S. seemed more different than they are today. The project aims to shed light on the larger transnational experience and educational issues vis-a-vis critical thinking in a rapidly changing and globalizing age; however, it is also propelled by a personal desire to make sense of the challenges in straddling cultures, ideologies, and conflicting expectations. Therefore, I will add a reflection of my own cross-cultural journey as part of an extensive narrative from transnational Chinese students contained in this dissertation.

I was born in post-Cultural Revolution China, in the late 1970s. To my parents who lived through decades of tumultuous political and socioeconomic upheavals during the early part of the communist regime, or to my grandparents who also experienced the onslaught of civil wars and foreign invasions that marked the end of a long, traditional order, my generation was perceived to be incredibly fortunate. Marked by Deng's Open Door Policy in 1978, it was the beginning of a peaceful and stable period that would eventually usher in tremendous transformations for China, catapulting it to the global stage as a superpower. Yet for average Chinese citizens and youth outside of the few metropolises, the pragmatic socioeconomic policy and reforms did not seem to immediately effect the old way of life. Shortage of supplies and tight rationing of everyday produce through a regulatory coupon system, for example, was still

in place throughout the 80s. Explicit ideological control also lingered on in a ubiquitous way: on street wall posters, in school textbooks, and at regular group or workplace meetings.

In many ways, trauma from a frenzied decade of political and intellectual persecutions (i.e., the Cultural Revolution, 1966-1976) were still fresh in many people's memories, and the senseless destruction had instilled a pervasive sense of fear in people for their basic security and livelihood. As an understandable measure of protection, adults cautioned the young to stay away from literature or anything that might foster independent thinking and expression—for *that* had meant danger and possible demise for oneself and one's family. Children thus learned early on to defer to authority, which came in many forms: both explicit and implicit, reasonable or unreasonable, in school or at home.

As this constituted the historical and social background that shaped my early upbringing, it contrasted sharply with my later experiences in the U.S., especially at one of the most liberal of liberal arts colleges in the States, Brown University. What I experienced there was both exhilarating and confounding, defining the quest that would eventually culminate to this dissertation that I am now writing. It was exhilarating because learning, for the first time, meant an exciting exploration of the unknown and genuine search for understanding, rather than the mere absorption of prescribed answers. It was profoundly liberating and intellectually intriguing to discover that much of what I had thought was "factual" instead became worthy of examination. I was both awakened and empowered by the sense of freedom, independence and equality intrinsic to the practice of critical inquiry.

At the same time it was confounding, because the sudden exposure to a vast amount of freedom and new ideals, such as living an "examined" life, also meant a growing sense of

uncertainty about the values and truths that I had previously imbibed—from a vastly different world and sociopolitical/ideological system. As one of only a handful of undergraduate students from mainland China at an open-minded yet Western-/Eurocentric elite institution at the time, I struggled not only with an unfamiliar learning style that emphasized argumentative analysis and originality but also, more intensely, with the unanticipated challenge of having to make sense of and choose between contending worldviews and practices. It was perhaps most difficult to communicate my changing perspective to my family in China and find resources in the U.S. that could mitigate the unyielding cross-cultural tension that I was encountering while living in both worlds. In retrospect, what had begun as an intellectual awakening quickly turned into a deeply personal experience of fragmentation and struggle for coherence and understanding.

As a result of this liberating yet disorienting cross-cultural experience, I changed my academic focus from STEM to the humanities, graduating with a double major in Classics and East Asian Studies from Brown. It was then followed by a MA in philosophy in China, where I tried again to make sense of the contending ideas and ideals from the East and the West. All the while, I hoped that further learning would help me regain a sense of ease and clarity about *what I know* and *who I am* that had been missing since my college years.

In my master's thesis, I analyzed the way in which Plato approached philosophical inquiry in the *Republic*: from the arguably deconstructive method of Socratic elenchus or logical refutation to a more constructive method of hypothesizing. The purpose of the methodological change was to arrive at a more conclusive understanding of what "justice" is, for it was perceived as a matter of not only intellectual but also moral and sociopolitical importance. In tracing Plato's attempts to move inquiry beyond *aporia—i.e.,* a state of philosophical puzzlement or impasse—

that typically ends his earlier works or the Socratic dialogues, I began to reflect on my college experience in which the Socratic spirit of critical inquiry had been frequently invoked. Perhaps what I had experienced as critical examination or critical thinking might also be missing a more constructive aspect—and that might be malleable as well. In other words, inspired by Plato, I wondered whether critical thinking, and college education in general, can be further improved to become more effective in not only helping students identify assumptions and false claims but also strengthen their abilities to construct a better system of understanding and beliefs of their own. Given the increasingly global and pluralistic nature of our times, where diverse and contending viewpoints constitute the mental context in which we make decisions and consider our actions, an education that fosters reconstructive abilities may be urgently necessary for individual well-being and productivity.

With this reflection in mind, I applied for graduate school in education with the intention to examine critical thinking as an important educational goal and its role in shaping students' intellectual and personal development. I was interested in understanding how students—particularly those coming from backgrounds divergent from the liberal values typically associated with the practice of critical thinking in American higher education—acquire and apply this form of thinking that may also constitute a way of being.

This dissertation on transitional Chinese students' experiences and perceptions of critical thinking is thus part of a broader research interest in the nature and direction of critical thinking and, by extension, higher education in general in an increasingly global and cross-cultural/intercultural/transcultural world. If "self-knowledge is basic to all knowledge" as suggested by the famous Socratic dictum "know thyself"(Noddings, 2012, p. 7), then starting the

project with transitional Chinese undergraduates was not only a natural choice, given my shared affinity with the group, but also a necessary choice for the knowledge that I need for myself and perhaps useful for others in navigating an increasing complex, multi-temporal, late-modern world as necessarily independent yet interconnected individuals.

2. Conceptions of Critical Thinking in the Literature (with annotations)

CT COMPONENTS	ELEMENTS WITHIN EACH COMPONENT
1. Abilities/Skills[271] *Drawn largely from Ennis (2011a) and Hitchcock (2018).	(1) Logical/Inferential abilities: Induction & Deduction
	(2) Analytic abilities: Argument analysis & evaluation
	(3) Questioning abilities: Clarifications & Assumptions
	(4) Consulting abilities: Credible information and observations gathering
	(5) Deciding/(value) judging abilities: Warranted decision/judgment
	(6) Suppositional/Imaginative abilities: Alternatives & Hypotheses
	(7) Emotional abilities: Sensitivities to puzzling problems, context, and the other in communication [Ennis, Lipman, Hitchcock]
	(8) Metacognitive/Self-correcting abilities: Aware the order and quality of one's thinking & be able to keep improving the thinking process [Ennis, Lipman][272]
	(9) Rhetorical abilities: Persuasive strategies [Ennis]
	(10) Observational abilities: Observation via senses or instruments [Hitchcock][273]
	(11) Experimenting abilities: (In)formal research/experiment [Hitchcock]
	(1) Open-mindedness (to alternatives)

[271] "Abilities" and "skills" seem to be used interchangeably among critical thinking theorists, with "abilities" used more often by earlier theorists and "skills"—as an increasingly popular concept in education as in other sectors today—more often by current theorists. The difference between the two terms may be subtle, but not insignificant: while "abilities," by definition, suggest one's (natural) capacities to do something, "skills" refer to doing something *well*. "Skills" also carry a stronger connotation for teachability, repeated practice, and productivity/efficiency. It is perhaps of no coincidence that "skills" have become a more popular concept in the current times, driven by intensifying neoliberal globalization in the past few decades and its ideology for economic efficiency and productivity. I use the term "abilities" more often in this dissertation is to highlight the need for a more balanced, holistic, or human-centered education at a time when the market demand for technical productivity and expertise seems to be dominating educational and policy agenda, as evident perhaps in the ways common terms or phrases have evolved.

[272] Ennis (2011a, 2015) called abilities (7), (8), (9) "nonconstitutive" or "auxiliary," meaning they are helpful/ideal but not essential to the critical thinking process. Other theorists like Lipman (1987) did not seem to agree, for being able to not only aware/monitor one's thinking process (i.e., metacognition or thinking about one's thinking as Ennis propose) but also "self-correct"/improve one's thinking process is considered an essential component in Lipman's conception of critical thinking. Again, Ennis' categorization or selection of critical thinking abilities and dispositions is often shaped by his "appraisal" conception to critical thinking (i.e., critical thinking as assessing arguments), which that can be more or less feasibly tested or evaluated.

[273] Hitchcock (2018) was one of the few theorists (the only one I am aware of) whose critical thinking literature review drew heavily on Dewey's conception of critical/reflective thinking. As will be explained later in Part B of the literature review, Dewey's conception differs significantly from the later conceptions of critical thinking proposed by informal logicians. As Hitchcock described, Dewey's conception is "constructive" in the sense that it focuses on constructing hypothesis/argumentative claims based on observations and experiments, while the other conceptions are more "appraisal," focused on evaluating argumentative claims, including those based on observations and experiments. Therefore, abilities (10) and (11) are not typically mentioned by contemporary critical thinking theorists, as much of the debate on critical thinking has been largely shaped by informal logic and other philosophical traditions different from Dewey's "pragmatic naturalism" (Noddings, 2012, p. 26).

2. Dispositions[274] (also known as tendencies, inclinations, habits, or spirit) *Drawn largely from Ennis (2011a, 2015) and Hitchcock (2018)	(2) Truth-seeking[275]
	(3) Willingness to suspend judgment[276]/doubt
	(4) Willingness to trust/act on reason (when evidence or reasons are sufficient)
	(5) Intellectual virtues[277]: courage, honesty, and persistence
	(6) Fairmindedness/impartiality to evidence
	(7) Habit/love on inquiry, inquisitiveness
	(8) Awareness/consideration of context
	(9) Systematicity (e.g., organized, orderly, focused inquiry) [Ennis, Facione]
	(10) Attentiveness/sensitivity[278] (to problems for more thinking) [Facione, Lipman]
	(11) Reflectiveness (e.g., self-examining, self-correcting) [Lipman, Noddings, Paul]
	(12) Care, involvedness, inner voice [feminist critique: e.g., Belenky, Noddings]
	(13) Self-confidence[279] [Facione; psychological factor]
	(1) Content knowledge: subject-matter/background knowledge
	(2) Operational knowledge: critical thinking concepts & principles, the *how to*

[274] Even though abilities/skills and dispositions are considered two categories or major components of critical thinking, they often correlate and overlap: what may be disposition for one theorist may be abilities for another (Lipman, 1987). For example, to inquire in an orderly manner is under the disposition "systematicity" by Facione (1995), but it is categorized as a nonconstitutive ability "metacognition" by Ennis (2015). Even though "critical thinking dispositions" have been defined as qualities that cannot be observed and assessed—i.e., by contrast to "critical thinking abilities"—in the often fluid categorizations of what belongs to "dispositions" or "abilities," it seems that the two components are not as clearly definable in practice as purported in theory.

[275] Truth-seeking or seeking the truth can be defined in the following way: "If one does not care about the truth but is content to stick with one's initial bias on an issue, then one will not think critically about it.… A disposition to seek the truth is implicit in more specific CT dispositions, such as trying to be well-informed, considering seriously points of view other than one's own, looking for alternatives, suspending judgment when the evidence is insufficient, and adopting a position when the evidence supporting it is sufficient" (Hitchcock, 2018, p. 24)

[276] Critical thinking aims to foster a reasonable skeptical attitude but not stubborn skepticism, i.e., perpetually doubting and non-committed to a position even when evidence and reasons are sufficient. Dispositions 3 & 4 come hand in hand or can be seen as two sides of the same coin.

[277] Without these intellectual virtues, one may stop thinking for oneself or further due to fear for various causes.

[278] Sensitivity to problems that needs inquiry has also been called "cognitive maturity" or epistemic maturity. As Facione et al. (1995) described: "The critical thinking-mature person can be characterized as one who approaches problems, inquiry, and decision making with a sense that some problems are necessarily ill-structured, some situations admit of more than one plausible option, and many times judgments must be made on standards, contexts and evidence which preclude certainty" (p.6)

[279] Also known as "critical thinking-confidence," it has been explained in the following way: "Lack of confidence in one's abilities can block critical thinking…. Thus willingness to think critically requires confidence in one's ability to inquire" (Hitchcock, 2018, p. 22-23)

3. Knowledge[280]	(3) Situational/personal knowledge: of a particular situation/context/person[281]
4. Purposes (pertaining to education)[282]	(1) (Cognitive-orientation) Better argumentations, careful thinking
	(2) (Intrapersonal-orientation) Self-knowledge, examining assumptions/biases
	(3) (Interpersonal orientation) "Letting the Other be," justice and democracy broadly defined as respect, co-exploration/-transformation, associated living
	(4) (Socio-political orientation) Critical actions/participations, social justice

[280] While critical theorists generally agree that one would need certain amount of knowledge about a particular topic in order to think critically about that topic, they may not list "knowledge" as a distinctive component, separate from "CT abilities." For example, Ennis (2015) listed only critical thinking abilities and dispositions; however, within critical thinking abilities and dispositions, he described several items that clearly convey the idea of having and utilizing knowledge for critical thinking. For example, under "dispositions," there is "try to be well informed" which entails acquisition of knowledge/information; under "abilities," there is "use their background knowledge, knowledge of the situation, and previously established conclusions" (p. 32-33). "Knowledge" as a separate component was mentioned by Hitchcock (2018), under which he distinguished "operational knowledge" and "subject-matter knowledge." As advocates or theorists of critical thinking pointed out, there had been an intense debate in education between knowledge-oriented vs. ability/skill-oriented approach to teaching and learning, it seems to be important to make "knowledge" a separate category or component and highlight its indispensable role in the operation of critical thinking,

[281] "Situational/personal knowledge" is not listed by Hitchcock or Ennis, but is arguably implied by Ennis when he described "knowledge of the situation, and previously established conclusion." In addition, other theorists have commonly recognized the importance of understanding the context within which critical thinking takes place, which also suggests contextual knowledge that is more situational to the thinker who is situated in and interprets the context and/or the people in it. In other words, while "situational/personal knowledge" may be categorized under "content knowledge," it is also distinctive enough to warrant a separate sub-categorization. It may be argued that while "content knowledge" typically refer to disciplinary/academic knowledge that is more generalized, permanent, and transferable from teachers/textbooks to students, "situational/personal knowledge" is more unique, fluid, and first-hand knowledge generated by oneself with more limited applicability to different situations and for different people. In addition, for the purpose of the dissertation that examines critical thinking beyond the academic domain, along with the claim by virtually all theorists that critical thinking should be useful in different domains (e.g., academic and everyday life), I list "situational/personal knowledge" separately to highlight the potentially different types of knowledge entailed in critical thinking across domains.

[282] These purposes pertain to the educational sector, where the primary goal is presumed to be fostering "students' autonomy and preparing students for success in life and for democratic citizenship" (Hitchcock, 2018, p.1). As the concept of critical thinking becomes increasingly popular in the business sector for a different set of goals—e.g. economic competition and entrepreneurship, the purposes of critical thinking would invariably change. The "purpose" component is highlighted in green, because it is, as Noddings (2012) pointed out, is not often mentioned in the central debates on critical thinking.

3. ONLINE QUESTIONNAIRE

Background Information

1. What year are you in at UCLA?
2. What is your gender?
3. Which place in China are you from? Is it rural or urban?
4. What would you describe as your family's socio-economic background?
5. What is your major (and minor)?
6. Have you had any previous study or travel abroad experience? If so, when, where, and for how long?
7. How did you decide to come to study abroad, and what do you hope to accomplish?
8. How would you describe your education in China in comparison to the U.S.?

Education Abroad

1. How are your enjoying (or not) your current experiences in the U.S.?
2. What are the challenges you've faced in American higher education, and where do you receive needed support?
3. What changes (if any) have you noticed about yourself while in the U.S., and what do you think has contributed to the changes?
4. How did you decide on your current major (and minor)?
5. Consider the following scenario: If a fellow student encounters a dilemma where she wants to pursue a major in art history but her parents want her to study something more practical, what would be your advice to that student on how to decide on a major?
6. In relation to the scenario above, please also respond the following sub-questions: (1) How did you come to hold your point of view? (2) Can you be certain about your position; if not, how do you face uncertainty? (3) Does context make a difference, e.g. one's gender, financial situation, and whether or not one decides to return to China or stay abroad?[283]

Critical Thinking

1. When you hear the phrase "critical thinking," what comes to your mind?
2. When and where did you learn about critical thinking? And what was the learning process of critical thinking like for you?
3. Can you describe situations where you've thought critically?
4. How often do you apply critical thinking? In terms of using it, does it make a difference whether you are in a Chinese context or in an American context?
5. How important is critical thinking for you? And what impact, if any, has it had on you?

Wrap-up Thoughts

1. How did you enjoy responding to the above questions? Are there any other topics or issues in your cross-cultural college education that you wish to bring up?
2. Would you be interested in participating the follow-up interview that is part of this study?

[283] These sub-questions relating to the decisional dilemma or scenario were designed to gather data on how participants actually think rather than what they say about their thinking. The three sub-questions may help to illuminate the extent to which a given participant think independently or deferentially, in an epistemically absolute/binary or complex way that allows for uncertainty, and with consideration of contextual information or not. These cognitive or epistemic characteristics may shed light on their critical thinking development.

4. Follow-up Interview Questions

Participant Name
Date of the 2nd Interview

0a. INTERVIEW ITSELF

- How have you been since the last time we met? Any notable courses or events or realizations since we talked last time? Any major changes?
- Could you tell me what had brought you to participate in the study in the first place?
- Would you feel comfortable sharing your current GPA?

0b. Clarification from the first interview

- Has your interests or academic major changed?
- How did the recent campus strike affect you?

1a. CT

(1) Has your view or understanding of CT changed in any ways?

(2) You had mentioned that you had first learned CT in _______,

- How similarly or differently is CT manifested in these different spaces?
- To what extent does SAT or TOFEL exam embody CT as you understand it?
- How long did it take you to feel confident about applying CT?

(3) Methodology course for the discipline?

(4) CT Transferability:

- How do you feel about applying CT in STEM vs. HASS? Differences & Similarities
- How do you feel about apply CT in academic vs. everyday life?

(5) To what extent do you believe in or feel comfortable with seeing things from multiple perspectives? What about the notion that there's no right or wrong answers? How do you evaluate the quality of your own thinking process and conclusion?

- Was the sense of "right vs. wrong" prominent in your growing-up experiences?
- Experience of harsh criticisms or experience of significant constraints?

(7) What is the purpose of CT education from your perspective? Should it have a clearly articulated purpose; why?

(8) Is there a difference between thinking and being or CT and decision-making for you; why or why not—i.e. what other factors come into play in your decision process? In China vs. in U.S.?

(9a) CT with Chinese characteristics:

- How would you describe your way of CT vs. domestic students': any qualitative and/or level differences?

- To what extent is CT universal vs. culturally-specific:

    - How does the argument, critiquing, and truth-telling aspect align or not with what you had grown-up with in China?

(9b) What aspects of American education as you experienced would benefit Chinese education?
- Vice versa, Chinese education to American?

1b. CT tasks
(Task 2) Ennis CT dispositions and abilities
--organize, explain, and suggest
- Place these **possible aspects** of CT in the following categories: (1) use frequently and comfortably; (2) use less frequently and feel unfamiliar—why, anyone important for you? (3) others: aspects that may not seem to be CT to you or simply not sure
- How do you feel about this list of aspects in general? Are there any other aspects of CT you practice that you'd like to add?

(+) Conflict of Interest Case Scenario:
(1) roommate typing away late into night and you couldn't fall asleep and there's another roommate who's not saying anything either; what would you have done? (2) Was there any other conflict of interests that was difficult for you to resolve at the time, and what did you do about it?

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2. Cross-cultural EDUCATION
(2)CT in STEM vs. non-STEM courses, hard skills vs. soft skills

(3a) Could you describe your experience interacting with teachers in China vs. U.S.?

(3b) peer-to-peer interaction; democratization:
- In terms of communication: reconsider assumptions and attitudes, learning from each other and as a result experience an enlarged or changed experience for both sides?
- Did you experience a widening sense of community/area of shared concerns?

(4) Could you describe learning style in China vs. U.S.?

(6) Do you observe a shift in what your value the most in the past few years?

3a. Parental/familial influence
(1) Are you a 1st generation college-student? What is your parents' education level? Where did they receive their education? What do they do

(2) You wrote that your family SES is X; in your mind, what is X?

(3) Relationship with your parents:
- Frequent contact and consultation; closeness?
- What is your perception on whether your parents can help you or not? What about their own perception on whether they can help or guide you?
- How has the relationship with your parents changed or not during the time abroad?

(4) How would you describe your family dynamic?

3b. INTERPERSONAL—within & outside of TCS Group (Interpersonal/the other)
(1) How would you describe the social relations among TCS abroad?
- Different subgroups and perceptions of each other?

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4. SELF (Intrapersonal; late-modernity individual)
(1) How would you describe yourself
- Identity-wise: Chinese, international, transnational, immigrant, or other?

(2) How well do you feel having an understanding and connection with yourself?
  - o Connection with others or sense of belonging? Where?
- Shift over time?

(3) What is like for you when you go back to China? (standing out; reverse cultural shock)
  - o What do you do about it?

(5) What would be an ideal life like for you: what, where, and how? Shift over time?

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5. Wrap-up
- Will probably present findings to you at some point to solicit your feedback

5. Self-Evaluation of Critical Thinking Abilities and Attitudes

(based on Ennis' List, 2015)

Follow-up Interview: CT Task (2)
Name:

*Mark the following **possible aspects** of CT in categories: (1) use frequently and comfortably; (2) use less frequently and feel unfamiliar (3) don't consider as CT or not sure about*

1. Seek and offer clear focus: e.g. statements of thesis or question or issue under consideration

2. Seek and offer clear and careful reasoning

3. Try to be well informed: e.g. ask or answer clarification questions, understand and use of graphs and math

4. Use credible sources and observations, and usually mention them

5. Take into account the total situation and knowledge of the context: e.g. historical background, present conditions

6. Be open-minded: e.g. seriously consider other points of view; withhold judgment when the evidence and reasons are insufficient; take or change a position when the evidence and reasons are sufficient

7. Be alert to alternatives & think suppositionally (e.g. let's suppose if…)

8. Seek as much precision as the situation requires & try to "get it right" to the extent possible or feasible

9. Analyze arguments, claims, and assertions

10. Knowledge and use of deductive, inductive reasoning, and logical fallacy

11. Define terms and judge definitions: e.g. clarification and alert to equivocation

12. Be aware of and evaluate unexamined assumptions and value judgements of others and one's own

13. Be aware of and check the quality of one's own thinking

14. Deal with things in an orderly manner

15. Be aware of and use rhetorical strategies of others and one's own

16. Anything else to add to this list?

6. Code Book for the two in-depth case analyses

				Comcept/Theme	Category	Subcategory	Code	Subcode **[demonstrate individual difference; deleted here to**
				I. ANOTHER GENERATION "BORN AND RAISED TO RISE TO THE TOP OF THE GLOBAL NEOLIBERAL SYSTEM"				
					1. Decision (I), Going Abroad			
						1.1 Making Decision (I): Study Abroad		
							1.1a Deciding Agent	
							1.1b Deciding (Structural) Factors (PUSHING FACTOR)	
							1.1c Deciding Aspirations (PULLING FACTOR)	
						1.2 Executing Decision (I): Educational Preparation & Social Background (in China)		
							1.2a Chinese education: pros	
							1.2(a) Chinese education: cons	
							1.2b Chinese social environment--pros	
							1.2(b) Chinese social environment--cons	
							1.2c Transnational Educational Means	
						1.3 Realizing Decision (I): Studying Abroad Experience (in the U.S.)		
							1.3a American education: pros	
							1.3(a) American education: cons	
							1.3b American social environment--pros	
							1.3(b) American social environment--cons	
							1.3c Transnational Education Challenges/Disadvantags	
					2. Cross-cultural Experiences			
						2.1 Cross-cultural Comparisons		
							2.1(a) U.S.-China differemces: cognitive/academic	
							2.1(b) U.S.-China differences: intrapersonal/interpersonal	
							2.1(c) U.S.-China difference: interpersonal/political/educational	
							2.1(O) Comparaibility itself (vis-à-vis American vs. China education sys	
						2.2 Cross-cultural Challenges		
							2.2a Knowledge content, curriculum (cog.)	
							2.2b Cultural/background knowledge (interp./cog.)	
							2.2c Language (cog./intrap./interp.)	
							2.2(O) Challenge level/intensity (overall)	
						2.3 Cross-cultural Impact		
							2.3a Becoming more aware larger/existential questions (cog.)	
							2.3b Desiring to be "unique" (intrap.)	
							2.3c Needing to be more outspoken (interp.)	
						2.4 Cross-cultural Prospect		
							2.4a Reculturation Challenge (potential)--intellectual/political (interp.)	
							2.4b Transnational dilemmas: Choice burden (cog.)	
							2.4c Transnational: Postgraduate Trajectory (identity/intrap.)	
				II. BECOMING TRANSNATIONAL				
					3. Changes Abroad (Jiayi's was a kind of reversal, not much change, for strong forces holding her back; Claire			
						3.1 Pre-change		
							3.1a Pre-change: cognitive--stimulated thinking	
							3.1b Pre-change: intrapersonal--major & career trajectory	
							3.1c Pre-change: interpersonal--concerned with what others think	
						3.2 Change		
							3.2a Change: cognitive	
							3.2b Change: intrapersonal	
							3.2c Change: interpersonal	
						3.3 Cause for Change		
							3.3a Cause for Change: Cognitive	
							3.3b Cause for Change: intrapersonal	
							3.3c Cause for Change: interpersonal	
			transnational		**4. Becoming Oneself--Decision-making (II), Major/Career trajectory**			
			price			4.1 Deciding Agent		
TRANSNATIONAL STRUCTURAL			**or challenge**			4.2 Deciding Factors		
IMPACT ON INDIVIDUALS			non-explicit				4.2a Deciding Factor: Cognitive	
			yet salent				4.2b Deciding Factor: Intrapersonal	
3-DIMENSIONS TO ANALYZE			as the				4.2c Deciding Factor: Interpersonal	
SUCH IMPACT			emotion			4.(2) Suppresssed Factors		
			& versus				4.(2)a Suppressed Factor: Cognitive	
DEWEAY/CT EDUCATION TO			codings				4.(2)b Suppressed Factor: intrapersonal	
ADDRESS THE NEED FOR			uncover				4.(2)c Supppressed Factor: Interpersonal	
AGENCY (CULTURALLY RELEVANT)			(epilogue:			4.3 Decisional Resolution		
			daughters				4.3a Decisional Resolution: Negating Self-interest	
			of the sea)				4.3b Decisional Resolution: Focus on the Logistics	
					5. Salient Emotions **[not quote a category but strategy that shows the important events highlighted by em**			
						5.1 Stages of Emotion		
							5.1a Emotion on DM (stage 1): "挺迷茫“,"perplexity"	
							5.1b Emotion on DM (stage 2): "纠结”, torned, difficult	
							5.1c Emotion on DM (stage 3): "烦了“, irritated	
						5.2 Causes for Emotion Changes		
							5.2a Cause for Emotion--"Perplexity": AWARENESS of larger questions	
							5.2b Cause for Emotion--"indecisive": FEAR for uncertainty, responsibili	
							5.2c Cause for Emotion--"irritation": CLASH of ideologies, unresolved	

III. LEARNING "CRITICAL THINKING"

6. Experiences of CT (I): Learning Process (may include some application)

- 6.1 Initial CT Exposure/Development: When/Where
  - 6.1a Learing CT (initial): When & Where--before high school
  - 6.1b Learning CT (initial): When & Where--high school
  - 6.1c Learning CT (initial): When & Where--college
- 6.2 Learning CT Process: How
  - 6.2a Learning CT: SAT/TOFEL prep.
  - 6.2b Learning CT: Discussion with others
  - 6.2c Learning CT: Reading on one's own
  - 6.2d Learning CT: Writing
- 6.3 CT in American Higher Education: Environment
  - 6.3a CT Learning Environment in college (CC)
  - 6.3b CT Learning Environment in college (UC)
- 6.4 CT Development: Progress
  - 6.4a Progressed (reasons for):
  - 6.4b Stalled (reasons for):

8. Perceptions of CT (I): Definitional (Learned)

- 8.1 CT as ability/skills
  - 8.1a CT as argumentational skills
  - 8.1b CT as synthesizing different perspectives
  - 8.1c CT as an efficient/speedy analytical skills
- 8.2 CT as disposition
  - 8.2a thorough/diligent/careful disposition
  - 8.2b: opennes
  - 8.2c independently & active disposition

CROSS-CULTURAL EXPERIENCES
& PERCEPTIONS ON CT

IV. BECOMING A CRITICAL THINKER

7. Experiences of CT (II): Applying

- 7.1 CT in Academics--College
  - 7.1a CT in HUM/SS
  - 7.1(a) CT not in HUM/SS
  - 7.1b CT in STEM
  - 7.1(b) CT not in STEM
  - 7.1c CT in STEM vs. Non-STEM: Similarities
  - 7.1(c) CT in STEM vs. Non-STEM: Differences
- 7.2 CT in Everday Life
  - 7.2a CT as Socio-political Critique
  - 7.2b CT as Decision-making Process
- 7.3 CT in Academia vs. Everyday life
  - 7.3a CT in Academia vs. in Everday life: Similarities
  - 7.3(a) CT in Academia vs. in Everday life: Differences

8+. Perceptions of CT (I): Definitional (Examined, Redefined)

- 8.1 CT as ability/skills
  - 8.1a CT as argumentational skills
  - 8.1b CT as synthesizing different perspectives
  - 8.1c CT as an efficient/speedy analytical skills
- 8.2 CT as disposition
  - 8.2a thorough/diligent/careful disposition
  - 8.2b: opennes
  - 8.2c independently & active disposition

9. Perceptions of CT (II): Evaluational

- 9.1 CT Comprehension & Challenge
  - 9.1a comprehension of CT
  - 9.1b CT as a learning challenge
- 9.2 CT Usage
  - 9.2a How frequently is CT applied
  - 9.2b Where CT is freqquently applied
- 9.3 CT Significance & Impact
  - 9.3a Importance of CT
  - 9.3b Impact of CT
- 9.4 Whether CT is Universal or Culturally-specific (or cirumstance-specific)
  - 9.4a CT as Universal
  - 9.4(a) CT as somehting cultural-specific
  - 9.4b CT as Intercultural

THEME: CT & SELFHOOD
IS SOMETHING THAT BECAME SALIENT
IN CLAIRE'S CASE, OR IN THE CONTRAST
BETWEEN THE TWO CASES

IV. SELFHOOD /10. Intrapersonal Core

10. Knowing-orientation

- 10.1a Epistemological framework
- 10.1b Self-knowledge
- 10.1c Sense of Certainty about one's Decision__in Interviews

11. Value-orientation

- 10.2a Values/Value Beliefs (VERSUS CODING)
  - 10.2a1 Value: Baseline for making choice for oneself
  - 10.2a2 Value: Responsibility/Being responsible
  - 10.2a3 Value: Loyalty
    - Filial Piety/Prioritizing parental wishes
    - vs. Prioritizing Oneself First
  - 10.2a4 Value (Chinese): follow the norm
  - vs. 10.2a(4) Value (American): "Be who you are"
  - 10.2a5 Value: Reading--for pleasure/success
  - vs. 10.2a(5) Value: Reading--for self-improvement as thinking, independer
  - 10.2a6 Value: "What's advantageous"--orientation
  - vs. 12b.1.6b Value: "What's (genuinely) interesting"-Orientation
  - 10.2a7 Value: Uniqueness--as different from others
  - vs. 10.2a(7) Value: Uniqueness--as being oneself, independent (thinking)
  - 10.2a8 Value: Stick with a decision one's already invested in
  - vs. 10.2a(8) Value: Be ready to change and experiment
- 10.2b Attitude
  - 10.2b1a Attitude toward knowledge
  - 10.2b1b Attitude toward opinions/knowledge-claims, e.g. mainstream/external/othe
  - 10.2b2a Attitude toward challenge (in general)
  - 10.2b2b Attitude toward DM dilemma (challenge, specfic)
  - 10.2b3a Attitude toward oneself in DM dilemma
  - 10.2b3b Attitude toward oneself/one's knowing (including interest, preference)
  - 10.2b4a Attitude toward (cross-cultural) challenges in the U.S.
  - 10.2b4b Attitude toward potential (recultulration) challenges in China

12. Action-orientation: Agency

- 10.3a Awareness
- 10.3b Taking Actions

7. Code Book for the two in-depth case analyses

Group	Participant	Gender	Major	GPA	Year & Trans	Secondary Education	Migration Status	Parental Education	Economic Statu
Group I	Claire	F	STEM--math	3.99	3	4. American High (3 yrs.)	2. Parachute	3. college equivalent (asso	M
	Tim	M	STEM--stat.	3.8	4T	2. Chinese Int'l School (e	1.* International (n	1. middle school or lower	UM/M
	Dio	F	SS (Hum min	3.7-3.8	3	2. Chinese/International D	1. International	1. high school or lower	M
	Audrey	F	SS	3.5	4	2+. Chinese Int'l School (b	1. International	4. college	M
Group II	Joanna	F	STEM--engin	3.76	4T (non-CC)	1. Chinese High/1-month (	1. International	3. college equivalent (asso	M
	Ray	M	STEM--engine	3.4	3T	3. Chinese + American Hig	3. Immigrant	2. high school or lower	LM/M
	Alex	M	STEM--engine	3.9	4	2. Chinese/International D	1. International	1. middle school or lower	M/UM
	Eleanor	F	SS--Psych	3.86	3T	1. Chinese High/1-yr. colle	3.* Immigrant (mor	3. college equivalent (asso	M/LM
	Nathan	M	HUM	4	3T	3. Chinese + American Hig	3. Immigrant	4. college	M
	Arielle	F	STEM--engine	3.5	3	1. Chinese High	1. International	5. college/graduate degree	M/UM
	Cindy	F	STEM--biolog	3.75	3T	1. Chinese High	1. International	4. college	M/UM
	Taylor	F	STEM--bioogi	3.75	4	2. Chinese/International D	1. International	3. college equivalent (asso	M
	Antonia	F	STEM--cognit	3.0*	3T	1. Chinese High	1. International	2. high school or lower	M
	Hanna	F	SS--Psycholo	3.52	3T	3. Chinese + American Hig	3. Immigrant	3. college equivalent (asso	M/LM
	Hill	M	SS--psycholo	3.6	4T	2-. Chinese/Foreign Langu	3. Immigrant	4. college	M
	Faye	F	STEM--engine	3.38	3T(non-CC)	5. American elementary (3	3. Immigrant	4. college	M/LM
Group III	Jiayi	F	STEM--applie	3.892	3T (non-CC)	2. Chinese/International D	1. International	5. college/graduate degree	M/UM
	Erick	M	HUM	3.1	4T	5. Overseas elementary (3	2.* Parachute (ext	1. middle school or lower	UM
	Lili	F	SS	3.2	3	4. American High	2. Parachute	1. middle school or lower	M/UM
	Becky	F	STEM--applie	3.5	3T	1. Chinese High	1. International	3. college equivalent (asso	M
Note: 3.4 is a relatively high/good GPA for engineering					Note: T stands for community college transfer				

	PERCEPTION/CONCEPTION		APPLICATION				LEARNING/TEACHING					EVALUATION					
	abilities + dispositions	+ knowledge	academic (d	personal	social	China/US	when	how	challenge	progress (HiEc	teaching (HiEd)	usage	importance	impact	CT and Value	universality	reconcept.
Claire	i. textual analysis; ii. logic	doesn't know what forma	math--logic,	self-talk like	attitudes diff	critical of soc	on her own since elementary/middle school, though formal training in t					often, as logi	very importa	No--why is it	major chang	universal--va	N (red are ba
Tim	Purpose: (i) facilitates lea	<1> pretty confident now,	<2> question	<1> decline c	<2> don't alw	**U.S.** <1> peo	higher ed (CC	<1> heard in	difficult to re	progressed ov	pretty strong criti	on everything	important, bu	see purpose	CT can't(? Or	Yes, others in	respect+affir
Dio	【HX：和#8一样， 两位	not clear what it is, demonstrating the lack of explicit teaching of it											use intuition too				
Audrey	<S> 3, open-minded, 7. nc	comfortable, subconsciou	<2> SS (glob	<S> in major	in considerat	critical persp	<S> middle s	gradual proc	N/A, though	seemed to hav	positive about he	every way, su	important, bu	#NAME?	she mention	Did I ask her	feeling, globa
Joanna	self-reflection; 4--indeper	fairly comfortable	STEM--logic	self-talk to d	more commu	CT is importa	UCI--Gender & Power course and writing series; doesn't think SAT repre					probably ofte	improtant fo	n/a	CT in everday	Of course; th	N
Ray	a method; (his training) c	his grasp is pretty though	brief discussi	when pushed	adjustment i	propensity fo	the seed of awareness started in high school in China; then further culti					most of the t	“super”: help	didn't ask ab	the tension b	something o	(不比人接受
Alex	1. logical; 2. comprehensi	lack clarity--his explanatio	STEM--logic,	**what to mak**	having differ	not critique/	1st time in high school, preparing SAT; distinct understanding process o					not often; co	quite importa	having differ	Not CT spirit	universal or commensensi	
Eleanor	fluid: questioning authorit	didn't question her own u	at CC, in HUN	very much sc	changes in at	huge change	own propensity; exposure in college in China and ability to see different					quite frequer	defining for h	can be critica	her commitn	potential is u	N
Nathan	questioning/suspect, mul	Didn't state he's not sure	explicit--logi	open to adju	persuading h	somewhat o	The word: SA	his account c	not really; th	strengthening	he saw CT trainin	frequently, th	quite importa	more incisive	he saw or ag	culturally spe	CT is limited
Arielle	(1) comprehensive, ration	fairly confident about her	(1) STEM: log	(1) CT applie	(1) open to o	(1) may have	(1) math for	logical, rational training; (2) accumulating life experience b				everyday life	very importa	More calm a	doesn't seem	(1) ability is	同情达理；
Cindy	thorough, understand bot	not sure, but exhibits goo	CT in STEM	self-reflectio	she seemed	she found th	heard a lot but nominally; largely learned on her own				largely implicit, i	everywhere i	she felt CT is	not obvious t	applies activ	not so much	in Chinese cul
Taylor	(+) CT as constructive crit	seem to be consistent bet	CH 50, EC 3--	more indepe	appreciation	Admits certa	<1> high sch	courses and development		continued in c	in the SS and HU	<S> applies f	felt that CT is	having poten	<2> Didn't cc	Universal; sh	N
Antonia	skpetical; the process of c	didn't mention knowing o	vague descri	quite self-ref	her emphasis	China appear	at CC; though	n/a, differen	n/a	n/a, though as	n/a, or unclear	frequently in	important, th	Explicitly stat	though not e	universal; sh	though not ex
Hanna	1. seeing things from diff	pretty confident about he	vague; some	very self-affi	very context	virtually no in	from her mom, who talke		did not find c	finding the arg	more mention of	all the time	most importa	expanding he	emphasize o	implicitly yes	同情达理；
Hill	0. (conceptual) dispositio	clear to himself: (2;) "CT i	i. (1;) critique	(2;) 1. **CT and**	i. **CT to nonc**	(1;) cultural s	**3rd**/easy, as	self-reflectio	research pro	from spirit, to	CC (concept), UC	frequent, all	vital--howeve	nonconformi	CT can't char	universal, like	Interdepende
Faye	updated 6.16.2022 (1a) o	conscious of herself still l	STEM: proble	admit that sh	she might la	She's reserve	(1) high school via Englsh		a bit challeng	find the learni	without expllicit t	She claimed	It's obviously	she said that	understandin	Yes, in the se	N
Jiayi	multiple perspectives/tw	definitional impression fr	not much CT	decision mak	not able to p	less room fo	(1) high school SAT/TOFEL prep. course					not consciou	not sure but	more mature	still wondering her decisic		N
Eric	3;--at least he's able to d	clear to himself: see thing	Not much CT	He attributed	Likewise, the	democracy is	3rd/via CC +	couldn't describe the learning process from CC, said instea				(S)all the tim	Yes; <1+2> B	<1;32'> think	CT as having	universal, so	N
Lili	open to anything; not abo	her self-evalution tends t	not much dif	in deciding h	not sure	context make	(1) high school; purportedl		natural	n/a	high school in-de	said to use e	very importa	largely positi	from right/w	culturally/An	N
Becky	logic; (implicitly) compreh	did not show doubts in he	big differenc	she never se	she just wan	too many so	from dad; ma	unclear	n/a, though s	n/a	n/a, or unclear	everyday (as	very (as logic	logical evalu	no interest t	(seems to be	N

SELFHOOD/INTRAPERSONAL									Interpersonal			
decision making--r	Changes or (dis/re)embedment	Process of Change	Attitude/Process	Persistence	Right/wrong	Epistemological position	Stages of Self-Authorship	Existential/Individ	Family relation	Highlighted sources	Other Support	In Vivo Codes
<S+1> Very rationa	Even though well adjusted here b	exposure to differer	not to put too mu	she also mer	she seemed t	On the one hand, open to	4, probably; her critique o	cosmopolitan self-	divorced family; i	mostly relied on hers	Self-claimed int	don't speak unless I'm asked; introversic
<1> parental wish :	<1> found faith; changed major; (	since he was young,	<1+2> actively loc	<2> super pe	he might have	OK with uncertainty: ever	4 (self-defining since your	Larger Self (?)--Ha	<1+2;> support a	Christian faith; paren	church, friends,	(1) "individulized learning" (or "learn wh
extremely thorough	significant changes in terms of fu	realized that what s	playful, curious, o	extremely pe	relative, non-i	intuition, flexible use of C	4. self-definining to a grea	worldview groudn	reserved, harmor	self, astrology, Naru	courses, reading	没什么办法， 对不对/不知你懂不懂，
same as epistemol	<2> lots of changes , noticable ch	see the same as the	<2> (1) by necessi	very persistent with those s		thinks independently on h	4, probably; she's still in th	an intercultural Ch	emotionally close	her family/parents' h	highly intelligen	意志再大， 也很肯能被环境训服；最近
she's comfortable w	values herself more; a new life, n	the new supportive	likes to push/enco	become mor	had her own s	she likes to think, observe	comfortable with making	not much, as she's	quite traumatic, t	talking to diversity of	she drew lots of	有是非但没对错; 先入己见； 少数群体
what is my passion	(1) more vocal and active at givin	it wasn' easy, took t	proactive but sele	even if she's	slightly afraid	comfortable with her ow	4	a fulfilling self wit	father actively se	Gender & Power; wri	both Chinese an	不自信, 爱面子；自己给自己做功课；
belief in independe	a more internally defined orienta	especially in terms o	not particularly pr	a bit reserve	didn't ask abo	believing in seeing either	self-defining, comfortable	no apparent existe	pretty terrible, bu	psychology course--a	roommates	对不对 (作为口头语， though right/wro
S1. study anthropol	(1)started around 3rd year--what	(not clear how it go	(1;40'-46') want t	doesn't have	persistence is	(s) certain/confident; (1;2	3 (but also elements of 1-	Self-manage: Wha	Not close to pare	(1) extracurricular re	(1) associate wi	(1) 顺其自然, follow the way, not to ass
fairly easy for her,	not much change other than she l	did better, became	encouraged by the	in a self-sust	stressed on re	she's committed to perso	fairly strong, though much	not much but a litt	very strong and s	mother	friends	自卑， 挺喜欢自己的， 喔， 好有意思，
1. psychology majo	(2;) individualism--prioritizing his	Propensity or expres	(2;) 1. "acceptanc	struggle with	not strong sin	(1, 2;) 1. Open, confident	3 (but also elements of 4-	Self-leadership: tir	It was "controling	(1) extracurr. reading	(1) friends in Ch	(1) interdependent "need the other to se
did't try to persuad	(1) she found the environment he	realizing in high sch	(1) committed to	very, indomi	strong, even p	increasingly relativist to a	beyond cross-road in a ser	She's learned/forc	distant, if not ant	online, other people'	clubs she sudde	perserverance/belief in myself, passion/
she has a strong se	lots of change intrapersonally--fr	process of embracir	after initial disillu	very persiste	she felt her er	she claimed that she didr	commitment	lots of disorientati	fairly traditional a	work experiences an	SJ activism and	安稳， 实际， 现实， 物质；价值， 存在
quite independent,	more confident and comfortable	the positive attitude	he talked to peopl	quite focuse	strong as he w	His CT approach/method	stay true to oneself, listen	no, currently quite	quite supportive a	courses in his discipli	quite alone, boc	不能算是压迫， 你太乐观了／给 他们太多
consider informatic	more independent, more of herse	[more freedom or la	(1) talking to thos	Her greatest	a subtle/comp	liberty, independence, ch	3--she's committed to cer	Very much individu	(1) parents loved	learning from succes	she doesn't like	calm/equinamity; 同情达理；挺神奇的
based on what she	learned to be even less binary, to	exposure to courses	resolved by the tir	no problem;	mom cultivate	not binary to start with; s	confident	not obvious	modern and tradi	sought parental advi	lectures and wo	和， 兴趣， 综合能力， 社交能力， 慢
deferring back and	more direct, at ease being hersel	a friend she's had si	persistence, dedic	high, even fc	strong	Feeling both obligation a	cross-road	“自己”／做自己；	parents vetoed h	parents/aunts/norm	aunt; friend fror	做自己， 公认的， 不得不去做／要， 是
mother provides gu	more feminist outlook; able to ap	through life experie	adjust by doing th	<2> very, de	she too said th	纠结--she knows what sh	3 (knows that she needs to	independence, inc	father is largely c	CH 50; linguistic facu	friends, family,	(1) 陈旧思想--女人该这样， 不该那样;
(S)1. major--easier	(S) More inidividualistic--don't wa	No clear process or	(1+2) withdraw, d	<1;> doesn't	strong in the u	<1;5'> had a period of cro	1 (a reversal case almost;	"**selfish**" individua	<1;> TRAUMA: bi	(1) his mom; (2) vag	(1) dog; (2)girlfr	(1) 多说多错--the more said the more r
dificult, wishing m	(1) perception of right or wrong t	(1) the new environ	(1) "about to give	sufficiently p	initially/habitu	(1) habit of deferrring de	cross-road	who am I/what do	close but with "c	parents	friends, but they	"formal education," "passive/passive-ag
pretty easy, as her	more confident/happier because	persistent with wha	(1) writing center	very--if it's s	very strong an	logical, to the point, asse	simple, straightforward, d	not really	Dad's subjective,	parental love/suppo	no time for club	没意思， 自己想做的， 随心所欲， 被

8. Simplified Code Book for General Analysis

CT--CT from a cross-cultural perspective						
	EXPERIENCES (I): DEVELOPMENT					
		TIME				
			Early			
			High school			
			College			
		LOCATION				
			China			
				traditional public school		
				alternatives: internatioanl school, progr		
			U.S.			
				community college		
				research university		
		MEANS				
			Formal			`
				courses, debates etc.		
				SAT		
				extracurricular activities		
			Informal			
				via self-initiated (from on		`
				via parental influence		
		PEDAGOGY				
			Explicit			
			Implicit			
	PERCEPTIONS (I): CONCEPTION					
		(explicit via description)				
			Abilities			
			Dispositions			
			Knowledge			
			Purpose			
	EXPERIENCES (II): APPLICATION					
		(implicit via demonstration/applications)				
			Academic			
				STEM		
				NON-STEM		
			Personal			
				Intrapersonal		
					decision-making	
					belief/value-system	
					perception/attitude towar	
				Interpersonal		
					familial	
					friends	
					the other (e.g., classmates	
			Sociopolitical			
				CHINA		
				US		
	PERCEPTION (II): EVALUATION (for RECONCEPTUALIZATION)					
		In SCHOOL (acdemic domain)--*How it's being taught explicitly or impl*				
			TEACHING OF CT			
				STEM		
				non-STEM		
			APPLICATION/USAGE OF CT			
				STEM		
				non-STEM		
			Ennis' List			
		in PERSON (personal domain)--*its actual use and relevance to studen*				
			RELEVANCE/IMPORTANCE			
				Academic		
				Personal		
			LIMITATION			
				about the dominant conception/Ennis' l		
				about their own practice (Dio, Nathan,		
		in NATURE: Unversal or Cuturally-Specific				
			UNIVERSAL			
				relevant, adaptable, something that's h		
			(in between)	Chinese equivalent (?)		
			CULTURALLY-SPECIFIC			
	CROSS-CULTURAL ELEMENT					
		intrapersonal	emphasis on intrapersonal use and growth (greater t			
		interpersonal	sensitivity to the other and social context, emphasis			
				conflict-avoiding, non-combative, not ex		
		cognitive	balance, not extreme (Chinese culture side that mya			
			other forms of rationalities or ways of knowing			

SELFHOOD--Transnational Seflhood						
	SENSE OF SELF					
		Attitude (toward oneself)				
			self-affirming (with self-correcting)			
			self-affmring (without self-correcting)			
			self-negating			
		Self-knowledge				
		Values				
		Pursits/aspirations				
		epistemic				
(simultaneou	CHALLENGES					
		Explicitly mentioned				
	(re-embed, late	cognitive	language (can affect expression of CT, but not too mu			
	(re-embed, late	interpersonal	socialization (cultural/background knowledge--cognit			
	(re-embed, late	intrapersonal	time management (prioritization, decision-making)			
		Implicitly experienced				
		intrapersonal	decision-making (not often recognized, but common,			
		intrapersonal	cultural/value/parental conflict			
	CHANGES					
		cognitive				
	(disembed)		esoteric' knowledge (e.g. Chinese 50)			
	(re-embed)		way of thinking--multiple perspective, evidence,			
			episetmic--less binary			
		intrapersonal				
	(disembed)		aspiration--change of major			
	(re-embed)		value--more intrapersonal/internal driven (thugh cau			
		interpersonal				
	(re-embed)		empathy (appreciation for the other)			
	(disembed)		redefine boundary with family in China or interaction			
	CAUSES					
		Explicitly mentioned				
			friends (often China)--China is changing			
			rites of passage (perhaps)--China is changing			
			experiences, courses, ideas in the U.S.			
		Arguably, depending on it's defined				
			CT (not many attributed the changes to CT)--much of			

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