EAST MEETS WEST: CULTURE AND APPROACHES TO LEARNING

by

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Abstract

The Confucian-Socratic framework proposed by Tweed and Lehman (2002) was revisited in reference to Eastern and Western cultural influences in modern day learning. More specifically, those students born in China were hypothesized to follow a more Confucian approach to learning manifested by effortful, pragmatic learning marked by behavioural reform. It was hypothesized that Caucasian students born in Canada, on the other hand, would follow a Socratic approach to learning evolving around the public and private questioning of material, evaluation and rating of others' ideas, and in the generation of personal hypotheses. Of particular interest was the approach to learning taken by Canadian Born Chinese students, as these students arguably fall within both cultural influences when compared to the other cultural groups of interest (i.e., Chinese and Caucasian). Lastly, acculturation levels of students were also assessed in an attempt to understand the potential placement of a bicultural student within the framework, as this may be someone who captures and utilizes both learning approaches within their education, therefore possessing a learning advantage over peers. Participants (N = 243; 75 males, 158 females, 10 unreported) were recruited from two British Columbia community colleges and grouped into three potential categories for data analysis (Chinese, n = 119; Canadian Born Chinese, n = 24; Caucasian Canadian, n = 100). Results on the self-report measures indicated considerable cross-cultural overlap within the approaches to learning as defined by the Confucian-Socratic framework. These findings therefore call into question the overall utility of the framework within Western educational institutions. Furthermore, the Canadian Born Chinese students challenged the linear hypothesis of the framework on many accounts, scoring significantly higher or lower than their Chinese peers on measures they were hypothesized to score

significantly on in the opposing direction. Level of acculturation was also found to be a key predictor in determining approaches to learning with the Chinese students as established in the linear regression. Possible explanations for the above findings are discussed, as well as the potential theoretical, applied and research implications in cross-cultural teaching and learning today.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACKNOWLEDGMENTS

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Chapter I

Introduction

Over the past decade, Canada has seen a vast increase in immigration from a wide variety of countries adding to Canada's cultural mosaic. With our philosophy of inclusion and multiculturalism, Canadians have both the challenge and the opportunity to embrace new cultures and to further enhance our cultural awareness of others. A rapid influx of persons arriving from Hong Kong, China, and Taiwan has given Canada a large Asian influence, especially in the provinces of Ontario and British Columbia, where a prominent population of immigrants from these Asian countries have chosen to make their new home.

As with any move, the transition to a new country can be very strenuous. Past research has shown that cross-cultural transitions to a new country can often be accompanied with negative experiences for many newcomers as new uncertainties and concerns that have never been experienced previously surface on a daily basis. The challenge of unemployment, living expenses, uneasiness about family members left behind, language inadequacies, homesickness, discrimination, financial worries, depression, social isolation, frustration and even anger are common emotions experienced by many who find themselves uprooted and living in a new country (Arthur, 1997; Ishiyama, 1989). However one of the most documented problematic areas in a cross-cultural transition is the cultural dislocation (culture shock) many feel upon entering a new country where past values, ideals and way of life are often openly challenged by the majority culture (see Berry, 1997 for review). This leaves many newcomers facing a loss of identity and self-worth and often feeling threatened and confused as the security that comes from living in familiar surroundings is left behind

(Ishiyama, 1989). This situation becomes especially critical when the newcomer's survival depends on how rapidly he/she can learn to function in the new culture's "way of doing things" and adapt in some way to a new set of values, ideals and expectations.

Influence of Culture in Education

The influence of culture is arguably pervasive in many aspects of our lives. Porter and Samovar (1991) write "culture is an all- encompassing form or pattern for living. It is complex, abstract, and pervasive" (p. 14). Thus, culture provides us with context, assumptions, values, ideals and schematics that readily influence the way we think and act. The task of learning does not escape this cultural power (Bruner 1996; Tweed & Lehman, 2002). As Hofstede (as cited in Pratt, 2005) noted, "culture affects who we are, how we think, how we behave and how we respond to our environment. Above all, it determines how we learn." Consequently, both students' and teachers' conceptions of their roles and behaviours in academic contexts are highly likely to be, in large part, culturally construed (Tweed, 2000). However, this may become problematic as students and educators alike may remain unaware of how these cultural influences may be affecting their thinking, their perceptions, their learning and their teaching styles (Tweed & Lehman). One frequently cited example of this is the overly negative view many Western educators hold regarding the learning styles or approaches that students of Asian descent employ in their schooling. In a survey study completed by Samuelowicz (1987), over one third of Australian instructors felt that Asian students utilized less desirable approaches to learning than did their Australian student counterparts. In addition, Kember (1991, 2000) documented this negative perception on a number of occasions, describing anecdotal reports from a number of sources stating these students have "little desire to discover for themselves...they wish to be spoon

fed and in turn they are spoon fed" (2000, p. 100). Further reports from Western instructors (Dunbar, 1988, p. 12 as cited in Kember, 1991) have maintained that learning for Asian students generally "is seen as possessing the ability to reproduce exactly what is taught in identical form" or the feeling that "in my discipline they all want to rote learn rather than think" (Biggs, 1996). This negatively construed perception or ideology of the Asian student may result in part from a lack of understanding of the distinct conceptions or ideas about learning that are found in the Eastern philosophies of learning, often noted as the Confucian Heritage Cultures (CHC, Ho, 1991, as cited in Biggs, 1996). What is even more interesting to note is that while the above negative views are held by many Western educators, Asian students coming from a Confucian Heritage Cultural background, on a whole tend to achieve very highly in academics and have extremely low drop out rates, even within our Western educational institutions (Flynn, 1992; Sue & Okazaki, 1990; as cited in Biggs, 1996 & Siu, 1992), thus presenting the paradox of the Asian learner. Perhaps then an increased understanding of these differing conceptions would potentially lead to a better appreciation and maybe even an adaptation of some aspects of Eastern educational philosophy into our Western academic institutions. Tweed and Lehman (2002) attempted to shed some light in this area in the construction of their Confucian-Socratic framework to provide a theoretical grounding for the documented differences in educational philosophy seen between Eastern and Western nations.

Confucius and Socrates: An Introduction to the Framework

Tweed and Lehman's (2002) work explored the application of a Confucian (culturally Eastern)-Socratic (culturally Western) framework to analyze the influence culture has on academic learning in post secondary institutions. This framework has provided a theoretical

perspective in which to ground the well-documented variations between approaches to education amid China specifically, and the Western nations (Biggs, 1996; Kember, 2000; Kember & Gow, 1991; Lin, 2002; Pratt, Kelly, & Wong, 1999). Furthermore, it has served to increase cultural understanding and permitted for further generation of theoretically based research in cultural comparisons of learning. Given this, it was the desire of the present author to utilize this Confucian-Socratic framework for the current study as the theoretical foundation to further explore the relationship these two ancient philosophers have on modern day post secondary education both at the teaching and learning levels. For this reason a quick review of the philosophies of these great men follows in reference to their ideals on education (see Tweed & Lehman, 2002 for a complete review).

Socrates and Confucius: Eastern and Western Philosophies

As the father of Western philosophy, Socrates (469-399 B.C.) believed it important to question your own and others' beliefs and to evaluate the knowledge of others (Tweed, 2000). Socrates' dialogue with Meno outlines many of Socrates' beliefs concerning education (Plato, trans. 1956). Socrates' teaching style involved implanting doubt into his young scholars' minds through focusing on errors in logic as, for Socrates, this was the first step towards attaining knowledge. Although Socrates had many students, he claimed in the *Apology* (Plato, trans.1937) to have never taught them anything; only to have asked the right questions. Socrates esteemed insight and self-generated knowledge and demonstrated his "teaching" techniques in the *Meno* when he facilitated an uneducated slave boy in solving complex geometric principles through questioning. Socrates also taught that true belief (right opinions) were not good enough without possessing a rational justification for those beliefs which he equated to knowledge.

Confucius' (551-479 B.C.) approach to academics was markedly different from that of Socrates. His philosophies were outlined by his students in the *Analects*, arguably a book of learning (On, 1996) as the theme of learning pervades the entire book (trans. 1998; hereafter the Analects will be cited according to book and chapter number only). For Confucius, focus on effortful learning (hard work) and behavioural reform resulting in a deep overall transformation of the student (sagehood) were paramount to education (Tweed, 2000, 7:25, 14:7, & 15:6). Confucius never refused to teach someone that wanted to learn, but would have refused to teach someone who was not eager to learn (12:8, as cited in On, 1996). Proper conduct was essential as this helped in learning virtue. He valued pragmatic learning as opposed to learning for the sake of learning, which arguably was foreign for Confucius. Learning, for Confucius, would ensure good employment in a high government position. The acquisition of essential knowledge or the "basics" before questioning and criticizing was vital for Confucius as he found fault in questioning or criticizing without the necessary preparatory knowledge, whereas Socrates encouraged this. Lastly, Confucius expected his students to respect and obey authority figures. He encouraged students to find a mentor and to strive to become like that person; " When you meet persons of exceptional character think to stand shoulder to shoulder with them" (4:17). Again this differed from the viewpoint of Socrates who often publicly ridiculed authority figures.

Confucian and Socratic Learning Today

Tweed and Lehman (2002) related the application of their Confucian-Socratic framework to modern contexts of learning, citing many examples of how the framework may be applied to current research in cross-cultural education, thus serving as a much needed theoretical grounding for research in this area. They suggested, based on Confucian

philosophy, that a Confucian oriented learning approach today would be learning that involves effort-focused conceptions, pragmatic orientations and acceptance of behavioural reform as an academic goal.

On the other hand, a Socratic oriented learning approach would focus on both overt and private questioning of material, expression of personal hypotheses, and a desire for more self-directed rather than instructor-directed learning tasks. When applying the Confucian-Socratic framework to modern day education, it is also imperative to remember that Socratic and Confucian ideals and values about education can be seen in both the East and the West. That is, while some more explicit differences do exist between teaching and learning philosophies, there is also overlap of both philosophies of learning in the East and the West. What the framework serves to do then is capture the general or more highlighted significant differences these two philosophers have brought to education in their countries of origin (Tweed & Lehman, 2002) and to observe them at work in their respective education systems today.

This study aims to further verify the Confucian-Socratic framework's utility in explaining some of these more general highlighted cross-cultural differences seen today. As no one has yet attempted to replicate Tweed's (2000) original work, this study served to further confirm whether or not the approaches to learning based on Confucian and Socratic philosophy, as outlined by Tweed and Lehman (2002) above, hold when tested further with a new cross-cultural sample. Furthermore, as level of acculturation was not considered in Tweed's original work and arguably plays an important role in cross-cultural transitions, measures assessing its role within the framework were also included in the study, thus permitting a glimpse into how the process of acculturation might affect a student's approach

to learning. All in all, the present study set out to reconfirm the utility of the Confucian-Socratic framework in understanding cross-cultural differences in approaches to learning between Eastern and Western learners, and examined the potential role that level of acculturation plays within the framework. A literature review and further clarification of the definitional issues related to this study are presented in the next chapter.

Chapter II

Literature Review

A Clarification of Terminology

The terms "Eastern," "Western" and "Asian" have been widely utilized within cross-cultural research, often without an explanation of the meaning or underlying definition intended for these cultural labels. This has been problematic as the term "Asian" or "Easterner" has been used to describe a plethora of persons from several different countries, and from numerous ethnic groups speaking several different languages. According to Smith (2001), when examining cultural approaches to learning, many authors have made no attempt to discern between the differing Asian groups. For example, in the area of help-seeking attitudes alone, authors have included persons from China, Korea, the Philippines, India, Japan, Taiwan and Pakistan in their "Asian" samples (Atkinson & Gim, 1989; Barry & Grilo, 2002; Furnham & Andrew, 1996; Solberg, Ritsma, Davis, Tata, & Jolly, 1994; Yeh & Wang, 2000). For the purpose of parsimony, and to prevent further confusion in an already muddled area, the term "culturally Chinese" was used to describe Chinese individuals of any ethnic group in place of the term Asian. Furthermore, the population of interest for the present study was strictly "culturally Chinese" individuals. The present study therefore did not include other "Asian" members from Korea, Pakistan, Japan, the Philippines and India in order to narrow the sample even further to allow for a more meaningful group-specific interpretation of the results. It is also important to recognize that there exist Caucasian persons that may also refer to themselves as "culturally Chinese" due to their acculturation experiences or personal preferences. These persons, while of unique interest, were also not

included in the present study under the "culturally Chinese" label in keeping with the parsimonious nature of the study.

In addition, when terms such as "Western" or "Westernized" are used throughout the remainder of this thesis, reference will be made to those "culturally Western", that is Western English speaking individuals (i.e., Americans, Australians, Canadians and Britons) of any ethnic group as outlined by Tweed and Lehman (2002). For conciseness, the cultural membership here is being treated as a simple either-or dichotomy (culturally Chinese or culturally Western). It must be cautioned, however, that even with this definitional restriction, the terms culturally Western and culturally Chinese remain grossly oversimplified. One cannot deny the reality of the underlying continuities of cultural difference between individuals within the same culture (within group differences) or minimize the reality that many people function well through more than one cultural lens (bicultural) (Hong, Morris, Chiu, & Benet-Martinez, 2000; Ryder, Alden, & Paulhus, 2000). Nonetheless, these terms do provide a useful cultural comparison for the purposes of the present study and resolve at least in part some aspects of the definition problems outlined above.

Acculturation: The Bidimensional Versus Unidimensional Model

Further to Tweed's (2000) work, the lack of a measure of acculturation seems to have been one major downfall of his study. Tweed and Lehman (2002) outlined that people do function well in more than one cultural lens. Arguably then, acculturation would play an essential role in a student's place within the Confucian-Socratic framework. However, there was no measure of acculturation utilized to assess this placement. Two measures of acculturation were consequently added to Tweed's previously used measures in order to

assess acculturations' role in the Confucian-Socratic framework. In choosing the most suitable measures of acculturation, it is imperative to understand the two dominant perspectives of acculturation- the unidimensional and the bidimensional models as discussed hereunder.

Followers of a unidimensional perspective perceive acculturation to occur as a strong inverse relationship. That is, as one adopts the mainstream culture, one's heritage culture becomes less influential to one's personal identity (assimilation). More explicitly, acculturating persons are viewed as in the process of relinquishing values, attitudes, and behaviours of their native culture, while also adopting those of the new culture at the same time (Gans, 1979; Gordon, 1964; Suinn, Ahuna, & Khoo, 1992 as cited in Ryder, Alden, & Paulhus, 2000). Conversely, followers of the bidimensional perspective (Berry, 1997; Celano & Tyler, 1990; LaFramboise, Coleman, & Gerton, 1993; Laroche, Kim, Hui, & Joy, 1996; Sayegh & Larsky, 1993; Sanchez & Fernandez, 1993; as cited in Ryder, Alden, & Paulhus, 2000) perceive the relationship between heritage culture and mainstream culture as independent of each other. Therefore individuals are free to adopt the values of the new mainstream culture without giving up their identity within their native culture. The bidimensional model holds two core key assumptions that if correct would render continued use of the unidimensional model as questionable. First, the bidimensional model implies that individuals are different in the extent to which their self-identity includes culturally based values, attitudes, and behaviours (Ryder et al., 2000). Second the model perceives individuals as "capable of having multiple cultural identities, each of which may independently vary in strength" (Ryder et al., 2000, p. 50). If these assumptions hold true, then a unidimensional model should arguably become obsolete as this model would now only provide a partial or

ambiguous representation of acculturation (Ryder et al., 2000). Basically what is occurring in the unidimensional model is a failure to consider alternatives to assimilation such as the emergence of integrated or bicultural identities which is known to be experienced among many individuals making a cross-cultural transition. As explained by Ryder et al. (2000):

> Unidimensional instruments would be unable to distinguish a bicultural individual who strongly identifies with both reference groups from one who does not strongly identify with either group. Both of these individuals would end up at the midpoint of a unidimensional scale (p. 50).

This common midpoint placement on unidimensional measures becomes problematic as these two individuals arguably vary in many important ways but are nonetheless being treated as the same. In view of this, a recently developed bidimensional measure of acculturation, the Vancouver Index of Acculturation (2000), was utilized in the present study as opposed the more previously cited unidimensional measure, the Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA, 1987). In addition, the newly created Cultural Preference Inventory (Ishiyama, 2004) was added as both a unidimensional and a bidimensional measure of acculturation to more closely assess the need for a bidimensional versus unidimensional approach to acculturation.

The Application of the Confucian-Socratic Framework to Culturally Chinese Students Learning in Culturally Western Educational Institutions: The Present Study

For many Chinese students, it is a dream come true to have the opportunity to study in a Western academic institution. However, upon arrival many find themselves living in a nightmare as their transition to a culturally Westernized post secondary institution can prove to be an exigent experience. Transition struggles among international Chinese students

include but are in no way restricted to language inadequacies, homesickness, discrimination financial worries, cultural shock, academic stress and loneliness (Arthur, 1997, Ishiyama, 1989). One of the commonly reported difficulties encountered by Chinese students is finding their culturally Western professors' expectations and methods of teaching to be alarmingly different from their Asian counterparts (Lin, 2002). Not surprisingly then Pratt, Kelly, and Wong have (1999) extensively documented some specific issues related to this difference in expectations and roles between Chinese and (expatriate) Western professors working in a Hong Kong university, finding some distinct variations in teaching perspective. This unique scenario allowed these authors to make some interesting comparisons between Eastern and Western philosophies of learning on Eastern soil for a change. Their findings indicated that, on the whole, Hong Kong Chinese faculty believed that it is their responsibility to be the expert and authority in their field and to have extensive comprehensive knowledge that they then relay to their students. Students were then responsible for memorizing this "foundational" knowledge as a means to further their understanding. In addition, Hong Kong Chinese faculty felt it was their responsibility to not only teach their students the essentials but to also look after their students' well being in a close protective "parent-like" relationship which included strictness and high expectations. For Hong Kong Chinese faculty, a good teacher was one that would slow down, provide additional explanation and close guidance, while also pointing out errors and weaknesses in their student's thinking to ensure accuracy. Hong Kong Chinese faculty viewed their Chinese students as pragmatic, focused, efficient and behaving in a sensible manner.

Conversely, Expatriate Western professors working in the same university felt that "foundational" knowledge or learning the "basics" to be of peripheral importance due to the

transitory nature of the basics (the basics are always changing as they are up for differing interpretations). Rather, what was important is ensuring that students learn how to learn for themselves through elaboration, extension, critiquing and application of "the basics", especially in light of the transitory nature of foundational knowledge. Moreover, the student-teacher relationship for the Expatriate Western faculty was one that was defined in terms of institutional roles and responsibilities and took on a more egalitarian feel than that of extended family. Effective teaching involved providing general direction for students, rather than meticulous gradual guidance. Also important was the promotion of an active learning environment that was safe for students to explore new ideas and test out hypotheses. These same students were viewed by Expatriate Western faculty in this study to be lazy and short-sighted with poor time management skills, desiring to be spoon-fed rather than think for themselves and generally unwilling to learn anything more than what was going to be on the exam.

On a different level, but within the same context, Ran (2001) found key differences to exist between culturally Chinese parents and British teachers with respect to the expectations they had for their child(ren)/students within the British school system. Chinese parents desired for their children to have perfect scores in their studies and in order to achieve this placed very high standards for their children with respect to study time, paying special attention to weaknesses and seeking advice whenever possible on how to help their children to improve. British teachers on the other hand tended to focus on the Chinese student's strengths. They were more process driven and wanted students to be good problem solvers (an area they felt many Chinese students lacked). Ran's findings give additional support for Pratt et al.'s (1999) conclusions concerning the learning expectations of more culturally

Western based teachers. Her study also serves to provide support for culturally Chinese views as both culturally Chinese faculty and Chinese parents conceptualized education's purposes in a similar light.

Additionally, Volet and Tan-Quigley (1999) examined several reported "awkward" interactions between culturally Asian students and academic staff at an Australian (culturally Western) university, finding Asian students to be generally overly persistent when attempting to get something they want even after they have been denied, "When you say 'no', the Australian students are more likely to shout and bang the tables on their way out, but that's the last you'll see them. The Singaporean students just keep coming back"(p. 100). This was viewed by many Australian staff as socially inappropriate but they also realized that since so many displayed this kind of "inappropriate" behaviour, it could possibly be widely used within Asian culture for a variety of culturally appropriate reasons not known to them.

On the other hand, Kember (1991, 2000), and Siu (1992), among others (see Biggs, 1996 for review) have completed a number of studies challenging the misconceptions and stereotypes concerning the learning approaches, motivation and study practices of Asian students by Western educators. First, the typically observed "poor" stereotypical learning strategies of the Asian learner were identified including a reliance on rote-learning, passivity, extrinsic motivation, poor problem solving and reasoning skills, a surface approach to learning, and resistance to new teaching methods as recognized by culturally Western educators (Biggs, 1989; Dunbar, 1988; Reid, 1989, as cited in Kember, 1991). Second, the paradox of the Asian learner was identified indicating that despite the above negative learning approaches, Asian students are also regarded as high academic achievers, excellent at project work, bright and hardworking and have larger percentages of high school graduates

prepared to meet the rigors of university (Biggs, 1996; Kember, 2000; Siu, 1992). This apparent dichotomy between perceived learning methods and the high achievements of these students remains puzzling for many Western educators. Biggs (1996), among others (Gow, Balla, Kember & Hau, 1996, as cited in Ramburuth & McCormick, 2001; Kember, 2000; Marton, Dall'Alba & Kun, 1996) examining this apparent dichotomy revealed some interesting findings. It was initially discovered that Asian students utilized memorization as only a first step on a learning continuum to further attempts in reaching understanding. Furthermore, distinctions between different types of memorization and their relationship to understanding were found (Marton, Dall'Alba, & Kun). Next, on the point that Asian students are passive and resistant to new learning approaches, it was found (as seen in Pratt et al., 1999) that the teaching styles within Asia, to the Western eye, largely cater to this more passive type of learning. Large class sizes and expository teaching methods that focus highly on exam preparation put pressure on both the instructors and students to perform (Biggs, 1996). When given the opportunity, although difficult at first, Asian students can adapt to a more problem-based, active classroom environment.

Mullins, Quintrell, and Hancock (1995) and Lin (2002) provided a student perspective on the experience of a cross-cultural academic adjustment, citing that the difficulties with Western instructors' expectations that accompany cross-cultural adjustment can continue well past the first year. Many students were not at all familiar with the many teaching styles found in North American classrooms, especially when asked to develop independent creative thought. For many, the expectations of their Western instructors were "revolutionary" (Lin, 2002, p.18) to them. Other major problem areas included language

proficiency, cultural awareness, and academic stress associated with these revolutionary expectations.

It is interesting to note how the opinions held and findings concerning the same students could be so different among studies. It would seem that what we perceive is highly dependent upon the cultural lens from which we are viewing. From the "revolutionary" approaches to teaching to the interpretation of everyday student behaviours such as asking for a copy of their teacher's notes, pressing the teacher to find out exactly what is going to be on the exam, taking a quieter and receptive attitude during class that includes little if no questioning or challenging of the teacher's authority, and the overly persistent manner in attempt to gain something that has been denied is viewed so vastly differently between cultural lenses. What is required then for more effective communication is a more cross-cultural lens, a lens that can be formed utilizing a cross-cultural framework from which understanding can be drawn.

Therefore, the purpose of the present study was twofold. First, this study acted as further confirmation to Tweed's (2000) findings in hopes of strengthening the use of the Confucian-Socratic framework as a useful tool in understanding and studying cultural differences in learning. Second, the study attempted to improve upon Tweed's by adding two measures of acculturation which served to acknowledge the individual differences that can exist as people acculturate to a new majority culture in an academic setting. This additional bidimensional measure also tapped into the special case of bicultural individuals that may able to switch their cultural lens depending on cues in the situation or environment (Hong et al., 2000). This kind of person, whether a student or an educator, could arguably

flex their learning or teaching approach to whatever is most beneficial, and therefore may possess an advantage of being academically bicultural.

In light of Tweed's (2000) findings, it was therefore hypothesized that students acculturated in a Western cultural learning environment would tend to report a learning approach marked by more questioning, evaluation and generation of ideas and less desire for a structured (instructor-directed) approach to their learning. Alternately, those acculturated in a more Eastern cultural learning environment would report more focus on pragmatic outcomes to their education, a more effort-focused conception of learning and less questioning, evaluation and generation of ideas around their school work. Furthermore, culturally Eastern students would report a higher desire for a structured approach to learning. The role of acculturation in learning approaches has yet to be explored. Therefore there were no set predictions for acculturation's role in Western versus Eastern based learning. However, some predictions based on theory may see those scoring high on the heritage culture dimension holding more Confucian values, while those scoring high on the mainstream culture dimension may hold more Socratic values. What was of keen interest was the outcome of those scoring high on both the heritage and the mainstream cultural dimensions (the case of the bicultural individual) and where they placed within the Confucian-Socratic Framework. How do these individuals manage the learning process? Do they have an academic advantage if they are able to utilize both philosophies? Also of interest were those who scored low on both the heritage and the mainstream cultural dimensions (those that do not identify with their heritage culture or the mainstream culture, marginalization). Where do these individuals lie within the framework, if at all?

Specific Hypotheses of the Present Study

Research Question 1: It was hypothesized, according to Tweed's linear model, that Chinese students (CHN, Group 1) would score significantly higher on surface approaches to learning, the desire for structured tasks and the desire for structured knowledge than Canadian Born Chinese students (CACHN, Group 2), who would in turn score significantly higher on these Confucian measures than Caucasian Canadian students (CAN, Group 3). On the other hand, CAN students would score significantly higher on deep approaches to learning, public and private questioning, the rating and comparing of theories, and in the consideration of self-generated ideas and disposition towards critical thinking than CACHN students, who likewise, would in turn score significantly higher on these Socratic measures than CHN students; see Table 1 for summary.

Table 1

Research Question 1: Direction of Hypotheses for the Confucian-Socratic Framework

Measures (DVs)	Hypothesized Results of Group Comparisons
Confucian Measures	
Surface Approach	CHN > CACHN > CAN
Desire for Structured Tasks	CHN > CACHN > CAN
Desire for Structured Knowledge	CHN > CACHN > CAN
Socratic Measures	
Deep Approach	CAN > CACHN > CHN
Rating	CAN > CACHN > CHN
Private Questioning	CAN > CACHN > CHN
Public Questioning	CAN > CACHN > CHN

Self-Generated Ideas	CAN > CACHN > CHN
Critical Thinking	CAN > CACHN > CHN

Research Question 2: It was also hypothesized that CHN students (Group 1) would score highest overall on the heritage culture dimension, followed by CACHN (Group 2), and then CAN students (Group 3). Alternately, CAN students would score highest on the mainstream North American dimension, followed by CACHN and then CHN students; see Table 2 for summary. Furthermore, it was hypothesized that CHN students and CACHN students may tap into the bidimensional nature of the scale and score either high or low on both heritage and North American cultural dimensions.

Table 2

Research Question 2: Direction of Hypotheses for the Level of Acculturation

Measure (DVs)	Hypothesized Results of Group Comparisons
Heritage Culture Dimension	CHN > CACHN > CAN
Mainstream Culture Dimension	CAN > CACHN > CHN

Research Question 3: It was hypothesized that the placement of the students within the framework based on their level of acculturation would follow the philosophies of Confucius and Socrates, with those scoring high on the heritage dimension also scoring high on the Confucian measures. Meanwhile those scoring high on the mainstream dimension would also score high on the Socratic measures. No specific hypotheses surround the placement of the bicultural or marginalized students within the measures of the framework. However one might anticipate the bicultural student to score high on both the Socratic and

Confucian measures, indicating the ability to utilize both approaches to learning equally well, while the marginalized student would score low on both, indicating no preference or use of either an Eastern or a Western approach to learning (See Figures 1 and 2).

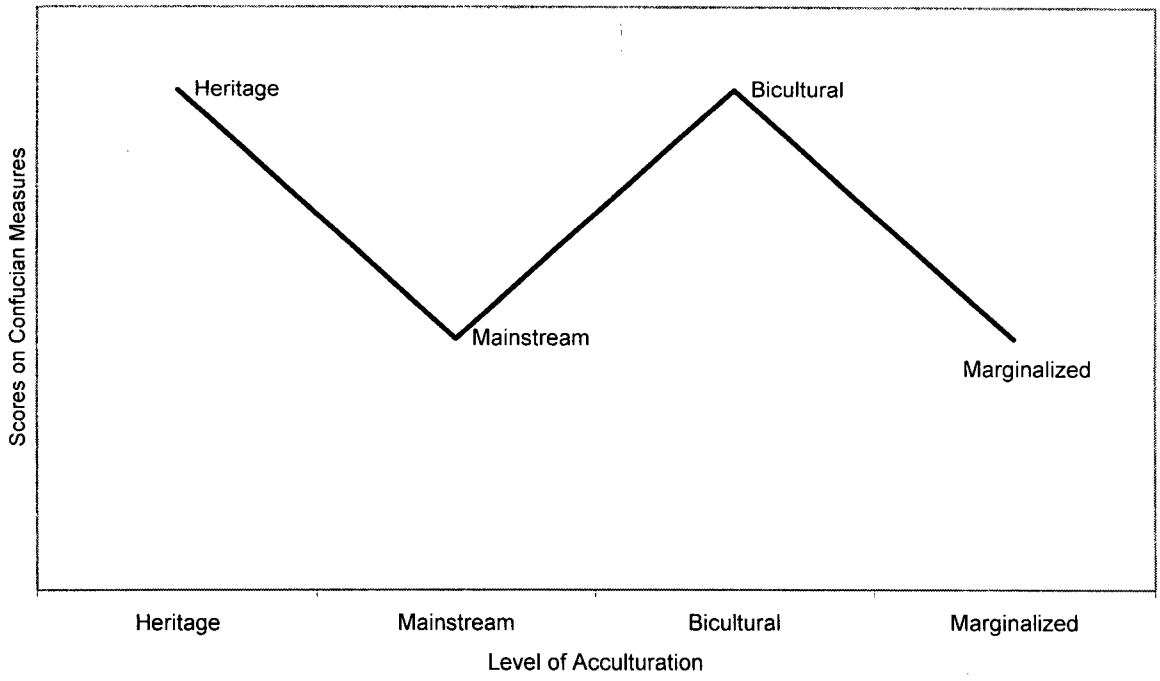

Figure1. Research Question 3: Hypothesized role of acculturation on the Confucian Measures.

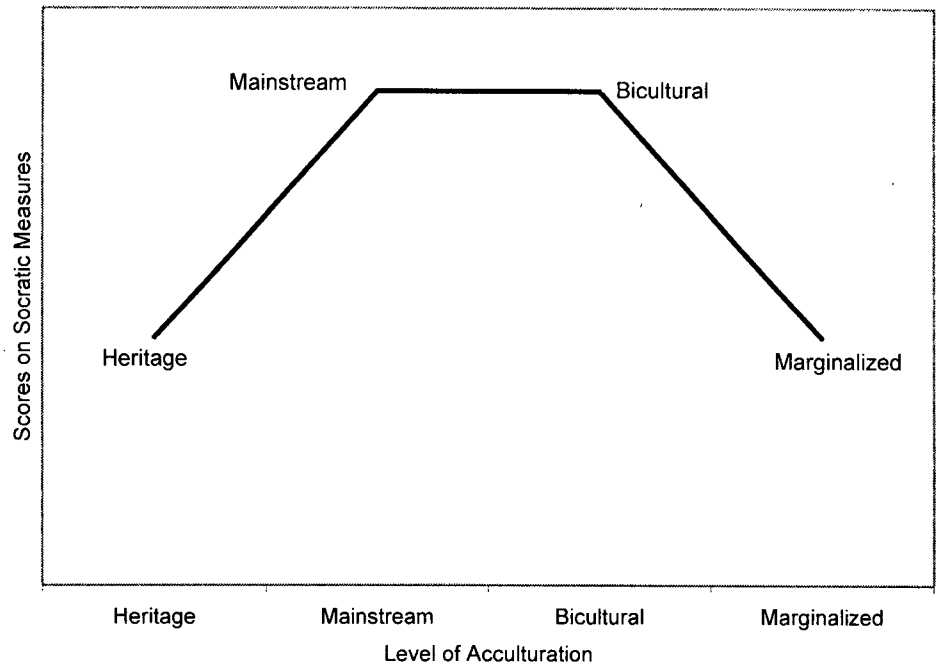

Figure 2. Research Question 3: Hypothesized role of acculturation on the Socratic Measures.

Chapter III

Methodology

Participants

Three hundred and sixty-seven students were recruited from two community colleges (Coquitlam College and Douglas College) located in the Lower Mainland area of British Columbia, Canada for participation in the study. Of the 367 participants, 243 (158 females, 75 males, 10 unreported) were selected based on the group memberships described below for data analysis. The mean age was 23.3 years. Faculties from which the students were drawn included: Arts (n = 111), Science (n = 40), Business (n = 63), General Studies (n = 12) and unreported (n = 17). Participants were grouped into three potential categories, Group 1: Asian-born Chinese Canadians abbreviated as "CHN" (n = 119); Group 2: Canadian-born Chinese Canadians abbreviated as "CACHN" (n = 24); and Group 3: Caucasian Canadians abbreviated as "CAN" (n =100).

Participants were placed into one of the above three categories based upon their reported ethnicity and birth place. Those participants born in China reporting Chinese ethnicity were placed in Group 1 (CHN), those born in Canada and reporting Chinese ethnicity in Group 2 (CACHN), and finally those participants born in Europe or North America and reporting European or Canadian ethnicity compiled Group 3 (CAN). Although the Confucian-Socratic model has been explained by Tweed and Lehman (2002) as a dichotomy (culturally Western and culturally Chinese), their participants were actually studied in a more linear fashion as the role of acculturation was considered between three as opposed to two groups as outlined above. The expression of culture lies in a more continuous rather than a strict dichotomous pattern as the process of acculturation is at work.

Placing participants in the above groups permitted further exploration into the acculturative process and provided opportunity to examine the impact that various acculturation strategies have on education.

Community college student populations carry unique characteristics not always found in first and second year university student populations, which is why this unique population was chosen. An advantage to college populations is the variety of students attending these institutions from various cultures, economic backgrounds, age cohorts and programs. While the University of British Columbia is arguably a multi-cultural institution, most students that would have participated in the research study come from a relatively homogenous socioeconomic student population, age cohort (17-20 years) and academic level (place in top percentage of high school class). The selected community colleges provided a more heterogeneous student population, which arguably more strongly resembles that of the general population. For example, students from community colleges are generally more diverse in age, socioeconomic background, and academic levels. Furthermore, students attending Coquitlam College were highly diverse in ethnic and cultural backgrounds; their student population is composed of close to 60% international students. It was for these reasons that the community college student population was preferred for the present study.

Measures

Several measures were used to assess the Confucian-Socratic framework. Tweed (2000) utilized a multi-trait, multi-method matrix type set-up in order to validate his newly constructed scales with previously published scales. Some comments on the validity of these new scales are discussed throughout this section in reference to the present study. In addition to Tweed's (2000) questionnaires, additional scales were used in an effort to improve overall

measurement of the constructs and to establish how the role of acculturation comes into play within the framework. The same seven scales as Tweed (2000) were utilized to assess the Socratic approaches to learning. These included a subset of items from the California Critical Thinking Disposition Inventory (CCTDI; Facione & Facione, 1992); Tweed's scales examining public and private questioning, a modified Judicial Thinking Style Scale (Sternberg & Wagner, 1991), and a Generating Ideas Scale, also developed by Tweed. In assessing the Confucian approach to learning, two scales were included: a modified form of the Executive Thinking Style Scale (Sternberg, 1997) and a modified Naïve Realism Scale (Wilkinson & Migotsky, 1994).

Consistent with many studies examining Chinese learning, the Study Process Questionnaire (Biggs, 1993), Surface and Deep subscales were also included in order to examine the consistency in findings among studies as this has been problematic in the past. For example Biggs (1992), and Kember and Gow (1991) found evidence indicating that Chinese students are deeper learners than their Western counterparts. However, Volet et al. (1994) and Tweed (2000) found evidence to the contrary. As this measure was recently revised (Biggs, Kember, & Leung, 2001), the new version (the R-SPQ-2F) was used for the present study as this measure concentrates on the two factors of primary interest to cross-cultural learning, the deep and surface scales and omits the achieving scale.

Lastly, the Vancouver Index of Acculturation (VIA; Ryder, Alden, & Paulhus, 2000) and the Cultural Preference Inventory (Ishiyama, 2004) were used to assess the role of acculturation both in approaches to learning as assessed by the R-SPQ-2F and in the Confucian-Socratic framework.

California Critical Thinking Disposition Inventory (CCTDI). The 75-item CCTDI is a self-report inventory assessing one's disposition (not ability) toward critical thinking. The American Philosophical Society's (Facione, Gaincarlo, Facione, & Gainen, 1995) definition of critical thinking (established by a national cross-disciplinary panel) was utilized in deriving items for the CCTDI. The APS conceive critical thinking as a purposeful cognitive process that results in a judgment about a proposition or action, which has been operationalized by the CCTDI items. Although this scale is less specific than Tweed's (2000) questioning and rating/evaluating items created for his study, the CCTDI has more evidence for its validity with an alpha of .90 and can therefore act as a validity check for Tweed's items. The alpha for the present study was .58 ($n = 236$) for the 17 items taken from the CCTDI.

Public and Private Questioning. Students' propensity to question the validity of class content was assessed with eight items created by Tweed (2000). Four items evaluated the tendency to privately question the validity of class content and four items assessed the tendency to publicly question class content. According to Tweed, "Evidence for scale validity was provided by expected negative associations with Altmeyer's (1981) Right Wing Authoritarianism Scale (RWA; $r = -.26, p < .001$), positive relations with the disposition toward critical thinking as assessed by the subset of CCTDI items ($r = .21, p < .001$; $r = .32, p < .001$), and distinctiveness from other Socratic and Confucian scales in a factor analysis described in (his) results section" (p. 21). Reliability for the present study was .772 for private questioning ($n = 243$) and .805 ($n = 237$) for public questioning as assessed by Cronbach's alpha.

Rating (Judicial Thinking Style Scale; JTS). The Judicial Thinking Style Scale (Sternberg, 1997) was utilized to assess the tendency to rate and compare theories. Seven items of the scale were used for the present study as Tweed (2000) found the eighth item on the JTS to be uncorrelated with the scale total and seemed theoretically unrelated to the judicial construct of interest. Alpha for the adapted scale was reported at .78 based on Tweed's sample of undergraduate students ($N = 379$) and was reported at .79 ($n = 243$) for the present sample. The validity of the scale was indicated by a positive correlation with the CCTDI items ($r = .34, p < .001$), and by its separation among other scales in factor analysis (Tweed). The present study also found a positive correlation between the CCTDI items and the adapted JTS ($r = .35, p < .001$), thus increasing its validity through replication.

Considering Self-Generated Ideas (Generating). In assessing the tendency to consider self-generated ideas, five items created by Tweed (2000) were used. Evidence for the validity and reliability of the items was ascertained by Tweed in an expected positive correlation with the eight item Mini-Marker for Openness Scale (Saucier, 1994; alpha = .81; $r = .29, p < .001$ as cited in Tweed) and through factor analysis of the Confucian /Socratic items. The alpha was found to be .85 ($n = 243$) with the present sample.

Desiring Structured Tasks (Modified Executive Thinking Style Scale; ETS) and Desiring Structured Knowledge (Naïve Realism Scale). In keeping with Tweed's study, two measures were used to assess students' desire for academic structure. Items on the Executive Thinking Style (ETS) Scale (Sternberg, 1997), modified by Tweed for use in an academic setting, were utilized. This scale examines the degree to which individuals favor structured and rule-guided tasks in an academic setting. It was suggested by Sternberg (as cited in

Tweed, 2000) that non-North American cultures that tend to emphasize conformity will score higher on this ETS construct.

The second scale that was used to assess desire for structure was a scale comprised of three items coming from the Naïve Realism Scale (Wilkinson & Migotsky, 1994 as cited in Tweed, 2000). This scale places more emphasis on the *desire* for structured knowledge. Persons scoring high on these items prefer relying on others (e.g., teachers) for their decision making and telling them what is right and wrong. Validity for these scales was provided by expected positive correlations with the Personal Need for Structure Scale (PNS; $r = .40$, $p < .001$; $r = .33$, $p < .001$; Neuberg, Judice, & West, 1997; Neuberg & Newsom, 1993, as cited in Tweed, 2000) and by its separation from the other scales in the factor analysis in Tweed's sample. Alpha for the scale used in the present study was .74 ($n = 243$) for desiring structured knowledge and .77 ($n = 241$) for desiring structured tasks.

Revised Study Process Questionnaire (R-SPQ-2F). Approach to learning was assessed by the 20-item updated and revised SPQ (Biggs, Kember, & Leung, 2001). The modified SPQ is designed to assess learning approaches on two dimensions- deep and surface. The surface subscale (SA) measures motivation aimed at utilitarian ends and strategies towards reproduction of essentials for academic assessment. The deep subscale (DA) measures motivation stimulated by interest in the subject matter and strategies directed at understanding. Both scales include subscales examining the motive and strategy behind learning. The SA consists of surface motive (SM) and surface strategy (SS) subscales, while the DA consists of deep motive (DM) and deep strategy (DS) subscales as its indicators. Each of the subscales contains five items recorded on a five- point Likert-type scale. Scores on each of the subscales are derived by adding up the five constituent items. Scores range

from 5-25, with higher scores indicating those who make greater use of that approach to learning. Cronbach alphas as indicated by Biggs et al. (2001) for each of the subscales were: DM = .62, DS = .63, SM = .72, SS= .57 and for the SA and DA scales (subscales combined), alpha = .73 (DA) and .64 (SA). The above reliability statistics of the final version of the R-SPQ-2F were calculated on 495 undergraduate students from various disciplines. Reliability statistics for the present study (n = 243) indicated Cronbach alphas of: .77 (DA) and .73 (SA) for the main scales and .62 (DM), .60 (DS), .68 (SM) and .50 (SS) for the subscales.

The Vancouver Index of Acculturation (VIA). The VIA is one of two measures of acculturation that was used for the present study. The 20-item VIA (Ryder, Alden, & Paulhus, 2000) measures both the heritage and mainstream dimensions of acculturation. Items are paired according to content area, with one item in each pair referring to heritage culture and the other referring to North American culture, thus permitting a bidimensional response (i.e. "I would be willing to marry a person from my *heritage culture*," and "I would be willing to marry a mainstream *North American* person"). Items are rated on a Likert-type scale ranging from 1 to 9 where higher subscale scores signify higher levels of identification with the culture represented. Internal consistency of the scale, as calculated by Cronbach alpha coefficients utilizing three different undergraduate samples (Chinese, non-Chinese East Asian, and non-English-speaking, N = 414), indicated alphas of .91, 92, and .91 for the six-item Heritage subscale (mean inter item r = .52, .53 and .51) and .89. .85, and .87 for the six-item Mainstream subscale (mean inter item r = .45, .38, and .44) respectively. The present sample of Chinese and Canadian Born Chinese students, (n = 134) yielded alphas of .91 on the Heritage subscale (mean inter item r = .50) and .86 on the Mainstream subscale (mean inter item r = .34).

Cultural Preference Inventory (CPI). The CPI (Ishiyama, 2004) was the second measure of acculturation utilized in the study. It is designed to assess the cultural preferences (Western versus Heritage culture) of participants among nine items (Arts and Music, Language, Food, Traditional Events, Local Community, Manners and Customs, Values, Friends and Counsellors/Advisors). Similar to the VIA, items are rated on a Likert scale ranging from 1 (*Preference for Western Culture*) to 9 (*Preference for Heritage Culture*). Unlike the VIA, the CPI is a unidimensional scale and thus forces participants to choose a preference in one cultural direction or the other. However, in order to assess the bicultural individual on this scale and to further examine the unidimensional versus the bidimensional approach to the study of acculturation, the CPI was also set up as a bidimensional scale, where participants were asked to select their liking for the same above nine items first about Western Culture (CPI -W) and then separately about their Heritage Culture (CPI -H). The scale used was 1 (*not at all*) to 5 (*very much*) in reference to their liking of each item in Western Culture and in their Heritage Culture, thus permitting a potential bicultural person to rate an item high (*very much*) or low (*not at all*) on both scales. Internal consistency of the scales was assessed using Cronbach alphas on the Chinese and Chinese Canadian students (n = 139). The alphas for these measures were .81 (CPI), .79 (CPI -W) and .83 (CPI -H) respectively.

Bicultural Perspective Inventory. Three new items were added by the present author to lend support to the acculturation measures in order to further assess the hypothesis of frame-switching in bicultural individuals. Items followed suit to the VIA items in asking participants if their behaviour changes dependent upon whether or not they are with members of their *heritage culture* versus members of the *mainstream culture*. As this was the first use

of these items in research, one item was dropped in further analysis as it violated reliability model assumptions and did not lend itself to offering any further information regarding the frame-switching hypothesis. The alpha, as calculated on the remaining two items, was .22 (n = 134).

Procedures

After ethical approval was received from both the University of British Columbia and the two community colleges, questionnaire packages were distributed during class time with the permission of the instructor for each class following a brief (5 to 10 minute) explanation concerning the purpose of the study. Students completed questionnaires on their own time (30-45 minutes) and returned the completed questionnaire package to their instructor in the following class or directly to the experimenter. The return rate was estimated at 62%. Students who returned their package were entered into a draw to win either a gift certificate or equivalent cash prize.

Chapter IV

Results

Group differences on all measures were assessed by MANCOVA, with age, gender, faculty and year in college as covariates. Only age and gender produced significant *p* values ($p < .05$) on the multivariate test and were therefore included as covariates on all subsequent ANCOVAs examining group differences on each of the dependent measures reported below. In addition, all post hoc comparisons within the study were analyzed using Tukey's HSD test. Magnitude of effect size was assessed using both η^2 and partial η^2 where appropriate. Interpretation of effect size was based on Cohen's (as cited in Howell, 1992) values whereby an η^2 of .01 represents a small effect, an η^2 of .06 represents a medium effect and an η^2 of .14 represents a large effect.

Research Question 1

Group comparisons: Deep versus surface approaches to learning. This analysis examined the group differences on all scales of the R-SPQ-2F. Results on the ANCOVAs indicated no statistically significant differences among the three groups (i.e., CHN, CACHN, CAN) on the overall Deep Approach scale (F (2, 227) = 1.67, p = .191, η^2 = .014, partial η^2 = .014), or on either of the deep subscales (Deep Motive: (F (2, 227) = 1.17, p = .311, η^2 = .010, partial η^2 =.010; Deep Strategy: (F (2, 227) = 1.896, p = .152, η^2 = .016, partial η^2 =.016) of the R-SPQ-2F. The covariate of age, however, played a significant role on all three scales indicating that the age of participants was an important factor in taking a deeper approach when learning (Deep Approach: (F (1, 227) = 10.73, p = .001, η^2 = .044, partial η^2 = .045; Deep Strategy: (F (1, 227) = 9.22, p = .003, η^2 = .038, partial η^2 = .039; Deep Motive: (F (1, 227) = 8.44, p = .004, η^2 = .035, partial η^2 = .036).

The overall Surface Approach scale, on the other hand, yielded significant group differences (F (2, 226) = 11.46, p <.001, η^2 = .087, partial η^2 = .092). Post hoc comparisons utilizing Tukey's HSD indicated statistically significant group differences to occur between the Canadian Born Chinese Group and the Caucasian Canadian Group (p <.01), and between the Chinese and Caucasian Canadian groups (p <.05). The Caucasian Canadian Group scored significantly lower than both the Chinese and Canadian Born Chinese groups. A statistically significant group difference also occurred between the Chinese Group and the Canadian Born Chinese Group (p <.05), indicating that the Canadian Born Chinese Group scored higher than the Chinese Group on surface approaches to learning (see Table 3 for group *Ms* and *SDs*).

Table 3

Mean and Standard Deviation Scores on the Revised-Study Process Questionnaire (R-SPQ-2F) for Chinese (CHN), Canadian Born Chinese (CACHN) and Caucasian Canadian (CAN) Groups

Scale	CHN		CACHN		CAN			
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
Deep Approach	30.63	(6.15)	27.83	(4.72)	30.97	(6.53)	1.67	*ns*
Surface Approach	25.76	(5.95)	28.57	(5.54)	22.42	(5.34)	11.46	.001
Deep Motive	15.29	(3.40)	14.17	(3.07)	15.74	(3.38)	1.17	*ns*
Deep Strategy	15.33	(3.31)	13.67	(2.51)	15.23	(3.74)	1.896	*ns*
Surface Motive	11.81	(3.57)	11.96	(3.52)	9.13	(2.66)	14.71	.001
Surface Strategy	13.95	(3.22)	16.39	(2.69)	13.29	(3.45)	7.37	.001

When the overall Surface Approach scale was divided into its respective subscales, significant group differences were found on both the Surface Motive and Surface Strategy

measures (Surface Motive (F (2, 227) = 14.71, p < .001, η^2 = .11, partial η^2 = .115; Surface Strategy (F (2, 226) = 7.37, p = .001, η^2 = .06, partial η^2 = .061). Post hoc comparisons showed that both the Chinese Group and Canadian Born Chinese Group scored significantly higher on the Surface Motive subscale than the Caucasian Canadian Group (p < .01), but not significantly different from each other (p = *ns*). Post hoc comparisons on the Surface Strategy subscale indicated that the Canadian Born Chinese Group scored significantly higher on this scale than both the Chinese (p <.01) and Caucasian Canadian groups (p <.01). No significant group difference was found between the Chinese Group and the Caucasian Canadian Group (p = *ns*) on this scale (see Table 3 for group *Ms* and *SDs* and Table 4 for pairwise comparisons). The covariate of age once again was found to play a role within the surface approach. This time its influence was evident on the Surface Motive subscale (F (1, 227) = 5.69, p = .018, η^2 = .02, partial η^2 = .024).

Table 4

Post hoc Comparisons of Group Differences on the R-SPQ-2F for Chinese (CHN), Canadian Born Chinese (CACHN), and Caucasian Canadian Groups (CAN)

Measure	Group Comparisons	*p*
Revised-Study Process Questionaire-2 Factor (N=243)		
Deep Approach	CHN= CACHN= CAN	*ns*
Surface Approach	CACHN >CHN > CAN	p <.05
Deep Motive	CHN= CACHN= CAN	*ns*
Deep Strategy	CHN= CACHN= CAN	*ns*
Surface Motive	CHN, CACHN > CAN	p <.01
Surface Strategy	CACHN> CHN, CAN	p <.01

Note. Tukey HSD values used to determine pairwise significance

Group Comparisons: Socratic Versus Confucian Approaches to Learning

There were statistically significant group differences on Tweed's Confucian-Socratic framework, using ANCOVAs (see Table 5 for group *Ms* and *SDs*) on the Public Questioning scale (F (2, 223) = 3.17, $p < .05$, $\eta^2 = .026$, partial $\eta^2 = .028$), the Considering Self-Generated Ideas scale (F (2, 227) = 7.56, $p = .001$, $\eta^2 = .06$, partial $\eta^2 = .062$), the Desire for Structured Knowledge scale (F (2, 227) = 6.86, $p = .001$, $\eta^2 = .055$, partial $\eta^2 = .057$) and the California Critical Thinking Disposition Inventory (F (2, 222) = 31.63, $p <.001$, $\eta^2 = .202$, partial $\eta^2 = .222$). Covariates indicating a significant role included gender on both the Public Questioning scale (F (1, 223) = 10.40, $p = 001$, $\eta^2 = .043$, partial $\eta^2 = .045$) and the Considering Self-Generated Ideas scale (F (1, 227) = 6.30, $p = .013$, $\eta^2 = .025$, partial $\eta^2 = .027$); while age played a significant part on the California Critical Thinking Disposition Inventory (F (1, 222) = 15.24, $p <.001$, $\eta^2 = .049$, partial $\eta^2 = .064$) and the Considering Self-Generated Ideas scale (F (1, 227) = 4.96, $p = .027$, $\eta^2 = .020$, partial $\eta^2 = .021$).

Non-significant group differences were found on the Judicial Thinking Style Scale (F (2, 227) = .490, $p = .613$, $\eta^2 = .0039$, partial $\eta^2 =.004$), the Private Questioning scale (F (2, 227) = .606, $p = .546$, $\eta^2 = .0052$, partial $\eta^2 = .005$), and the Desire for Structured Tasks scale (F (2, 225) = 1.94, $p = .146$, $\eta^2 = .016$, partial $\eta^2 = .017$).

Table 5

Mean and Standard Deviation Scores on Measures Examining the Confucian-Socratic Framework for Chinese (CHN), Canadian Born Chinese (CACHN), and Caucasian Canadian (CAN) Groups

Measure	CHN		CACHN		CAN			
	Socratic Measures (N=243)							
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
Judicial Thinking Style	3.28	(.68)	3.08	(.75)	3.29	(.77)	.490	*ns*
Private Questioning	2.59	(.79)	2.38	(.98)	2.44	(.99)	.606	*ns*
Public Questioning	2.32	(.85)	1.8	(.66)	2.16	(1.01)	3.17	<.05
Self-Generated Ideas	2.80	(.73)	2.02	(.78)	2.71	(.99)	7.56	.001
CCTDI[a] subset	3.31	(.34)	3.5	(.33)	3.73	(.38)	31.63	<.001
	Confucian Measures (N = 243)							
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
Desiring Structured Tasks	3.87	(.68)	3.80	(.62)	3.76	(.61)	1.94	*ns*
Desiring Structured Knowledge	3.30	(.84)	3.14	(1.13)	2.74	(1.08)	6.86	.001

Note. [a]CCTDI: California Critical Thinking Disposition Inventory

Post hoc comparisons (see Table 6) indicated that the Chinese Group scored higher on the Public Questioning scale than the Canadian Born Chinese Group ($p < .05$). No significant mean differences were found on comparisons between Chinese and Caucasian Canadian groups ($p = ns$), or between the Canadian Born Chinese Group and Caucasian Canadian Group ($p = ns$) with respect to Public Questioning. Mean group differences were also found between the Chinese Group and the Canadian Born Chinese Group with the Chinese Group scoring significantly higher than the Canadian Born Chinese Group on the Considering Self-Generated Ideas scale ($p < .01$). The Caucasian Canadian Group also scored significantly higher than the Canadian Born Chinese Group on this measure ($p < .01$).

However, no mean differences occurred between the Chinese Group and the Caucasian Canadian Group ($p = ns$). Statistically significant post hoc findings on the Desire for Structured Knowledge scale indicated the Chinese Group to score higher on this scale than the Caucasian Canadian Group ($p < .05$). There were no significant group differences between the Canadian Born Chinese Group and the Caucasian Canadian Group ($p = ns$), or between the Canadian Born Chinese Group and the Chinese Group ($p = ns$). Lastly, the California Critical Thinking Disposition Inventory yielded statistically significant group differences between all three groups. The Caucasian Canadian Group scored significantly higher on this measure of critical thinking than either the Chinese Group ($p < .01$) or the Canadian Born Chinese Group ($p < .01$). Furthermore, the Canadian Born Chinese Group also scored significantly higher than the Chinese Group ($p < .05$) on this measure of critical thinking.

Table 6

Post hoc Comparisons of Group Differences on the Socratic-Confucian Scales for the Chinese (CHN), Canadian Born Chinese (CACHN) and Caucasian Canadian (CAN) Groups

Measure	Group Comparisons	*p*
	Socratic Measures (N = 243)	
Judicial Thinking Style	CHN= CACHN= CAN	*ns*
Private Questioning	CHN= CACHN= CAN	*ns*
Public Questioning	CHN, CAN > CACHN	$p < .05$
Self-Generated Ideas	CHN, CAN > CACHN	$p < .01$
CCTDI[a] subset	CAN> CACHN> CHN	$p < .05$
	Confucian Measures (N = 243)	

Desire for Structured Tasks	CHN= CACHN= CAN	*ns*
Desire for Structured Knowledge	CHN > CAN	$p < .05$
	CHN = CACHN	*ns*
	CACHN = CAN	*ns*

Note. Tukey HSD values used to determine pairwise significance

[a]CCTDI: California Critical Thinking Disposition Inventory

Research Question 2

Acculturation measures. ANCOVAs yielded statistically significant group differences on the Heritage subscale of the Vancouver Index of Acculturation (F (2, 217) = 5.082, $p = .007$, $\eta^2 = .045$, partial $\eta^2 = .045$). Post hoc comparisons identified the Chinese Group and the Canadian Born Chinese Group to score significantly higher than the Caucasian Canadian Group ($p < .05$), however they did not differ significantly from one another ($p = ns$). Scores on the Mainstream subscale (F (2, 216) = 50.27, $p < .001$, $\eta^2 = .312$, partial $\eta^2 = .318$) followed suit to the Heritage subscale but in the opposing direction. Consistent with what was expected in terms of the Canadian Born Chinese students' higher level of Canadian acculturation, the post hoc tests indicated the Chinese Group to score significantly lower than both the Caucasian Canadian Group ($p < .01$) and the Canadian Born Chinese Group ($p < .01$) on this mainstream dimension. The Caucasian Canadian Group and the Canadian Born Chinese Group, however, did not differ significantly from each other on this mainstream dimension ($p = ns$) thus lending support to the importance of a bidimensional approach to acculturation.

The Cultural Preference Inventory was organized to examine the unidimensional versus the bidimensional approach to the study of acculturation. On the unidimensional

measure, statistically significant group differences were found (F (2, 217) = 54.20, p <.001, η^2 = .33, partial η^2 = .333). Post hoc comparisons (see Table 7) indicated that both the Chinese Group (p <.01) and the Canadian Born Chinese Group scored significantly higher (p <.01) than the Caucasian Canadian Group. They did not, however, score significantly differently from one another (p = *ns*). This finding shows that when forced to make a choice both Chinese influenced groups scored higher or have a greater preference for items within their Heritage culture, while members in the Caucasian Canadian Group have more mainstream Western preferences. When the CPI was divided into a bidimensional measure (the CPI -W and the CPI -H), statistically significant group differences were found on each of the measures (CPI -W: F (2, 221) = 24.10, p <.001, η^2 = .175, partial η^2 = .179, CPI -H: F (2, 217) = 6.31, p = .002, η^2 = .055, partial η^2 = .055). Post hoc comparisons on the CPI -W followed suit to the MSS on the VIA indicating significant group differences between the Chinese Group and the Canadian Born Chinese Group, (p < .01), and between the Chinese and Caucasian Canadian groups (p <.01). Once again, there were no group differences between the Canadian Born Chinese Group and the Caucasian Canadian Group (p = *ns*) on this Western measure. Group differences on the CPI -H were also the same as the HSS of the VIA. Significant group differences were found between the Chinese Group and the Caucasian Canadian Group (p < .05), but no group differences were found between the Canadian Born Chinese Group and the Caucasian Canadian Group (p = *ns*), or between the Chinese and Canadian Born Chinese groups (p = *ns*).

Table 7

Post hoc Comparisons of Group Differences on Acculturation Measures for the Chinese (CHN), Canadian Born Chinese (CACHN), and Caucasian Canadian Groups (CAN)

Measure	Group Comparisons	p
Heritage Scale (VIA)	CHN, CACHN > CAN	$p < .05$
Mainstream Scale (VIA)	CAN, CACHN > CHN	$p < .01$
Cultural Preference Inventory (CPI)	CHN, CACHN > CAN	$p < .01$
CPI (Heritage subscale)	CHN, CACHN > CAN	$p < .05$
CPI (Western subscale)	CAN, CACHN > CHN	$p < .01$

Note. Tukey HSD values used to determine pairwise significance

Research Question 3

The case of the bicultural and marginalized individual. Three steps were taken to assess the case of the bicultural and the marginalized participant and his/her placement in the Confucian-Socratic framework. Participants were selected out of the sample based on certain criteria in regards to their acculturation scores on first, the VIA and second, the CPI. Lastly, roughly following Berry's (1997) model of acculturation, participants were arbitrarily grouped into the following four categorical groups based on their scores on the two acculturation measures- Heritage, Mainstream, Bicultural, and Marginalized- for further analysis. In regards to the VIA, participants were selected and then placed into one of the above groups based on the following requirements: Participants in the Heritage sub-sample (n = 14) were selected by scoring very high (seven or higher out of a possible nine) on the Heritage Subscale (HSS) and very low (five or less) on the Mainstream Subscale (MSS), while participants in the Mainstream Group (n = 16) were selected if they scored high on the MSS (six or more) and low (five or less) on the HSS of the VIA. Bicultural individuals (n = 11) were selected by scoring very high on the HSS and the MSS (seven or more on both scales) and having a difference score of less than plus or minus .05 (i.e. they scored almost

equally on both scales). Lastly participants were placed in the Marginalized Group (n = 12) if they scored very low (five or less) on both the HSS and the MSS of the VIA.

Following the above grouping based on the VIA scores, the CPI scores were then used as an alternate for comparison. Groups were selected in a similar fashion to those on the VIA. Those placed in the Heritage Group scored four or higher on the CPI H (out of a possible 5) and three or less on the CPI W (n = 7). Mainstream participants came from the Caucasian Canadian Group and scored four or higher on the CPI W and three or lower on the CPI H (n = 24). Those selected into the Bicultural Group scored four or higher on both the CPI W and the CPI H (n = 16). When cases of Marginalization were selected based on participants scoring lower than three on both the CPI W and the CPI H, only a single case was found.

Lastly, a new sub-sample was created by combining the groups found on the VIA and CPI to examine the effects these compiled groups might potentially have on the dependent variables. This combined sample provided the following sample sizes within each of the four categories for analysis: Heritage (n = 19), Mainstream (n = 30), Bicultural (n = 23) and Marginalized (n = 12); some participants overlapped between the VIA and the CPI. ANOVA was performed utilizing this new sub-sample on each of the dependent variables in hopes of answering the question of where the bicultural and marginalized individuals fall within the framework.

Using ANOVAs, statistically significant group differences were found on the overall Surface Approach scale (F (3, 79) = 4.24, p = .008, η^2= .14), the Surface Motive subscale (F (3, 80) = 7.35, p < .001, η^2 = .22), the Judicial Thinking Style scale (F (3, 80) = 3.48, p = .02, η^2 = .12), the Desire for Structured Tasks scale (F (3, 79) = 7.04, p <.001, η^2 = .21), the

Desire for Structured Knowledge Scale (F (3, 80) = 3.065, p = .003, η^2 = .10) and the California Critical Thinking Disposition Inventory (F (3, 77) = 8.0, p < .001, η^2 = .24). Non-significant results were found on all three Deep scales of the R-SPQ-2F (Deep Approach: F (3, 80) = .559, p =.644, η^2 = .021; Deep Motive: F (3, 80) = .768, p =.515, η^2 =.028; and Deep Strategy: F (3, 80) = .766, p = .516, η^2 =.028), the Surface Strategy scale (F (3, 79) = .933, p = .933, η^2 = .034) , the Private and Public Questioning scales (Private: F (3, 80) = .833, p = .479, η^2 = .030; Public: F (3, 77) = .338, p = .798, η^2 = .013), and the Considering Self-Generated Ideas scale (F (3, 80) = .395, p = .757, η^2 = .015) (see Table 8 for *Ms* and *SDs*).

Table 8

Mean and Standard Deviation Scores on the R-SPQ-2F and Socratic-Confucian Scales for the Bicultural, Marginalized, Heritage and Mainstream Sub-sample

Measure	Heritage		Mainstream		Bicultural		Marginalized			
				Revised- Study Process Questionnaire-2 Factor (n = 84)						
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
Deep Approach	28.74	(6.0)	29.83	(7.2)	31.13	(6.12)	29.08	(4.93)	.559	*ns*
Surface Approach	28.58	(6.78)	23.20	(6.03)	28.09	(6.16)	27.83	(5.54)	4.24	.008
Deep Motive	14.53	(3.27)	14.97	(3.66)	15.39	(3.76)	13.58	(2.71)	.768	*ns*
Deep Strategy	14.21	(3.17)	14.87	(4.07)	15.74	(3.22)	15.50	(2.64)	.766	*ns*
Surface Motive	13.84	(4.07)	9.30	(2.68)	12.35	(3.98)	12.92	(4.12)	7.35	<.001
Surface Strategy	14.74	(3.65)	13.90	(3.96)	15.50	(3.04)	14.92	(2.43)	.933	*ns*
				Socratic Measures (n = 84)						
Judicial Thinking	3.15	(.71)	3.28	(.84)	3.31	(.54)	2.58	(.39)	3.48	.02

Private Question.	2.49 (.66)	2.30 (.92)	2.53 (1.09)	2.75 (.46)	.833	*ns*
Public Question	2.12 (.75)	2.04 (1.00)	2.17 (.96)	2.38 (.82)	.388	*ns*
Self-Gen. Ideas	2.76 (.70)	2.55 (.90)	2.77 (.97)	2.58 (.59)	.395	*ns*
CCTDI[a] subset	3.30 (.30)	3.66 (.44)	3.54 (.34)	3.10 (.15)	8.0	< .001
			Confucian Measures (n = 84)			
Structured Tasks	4.10 (.66)	3.81 (.54)	4.12 (.55)	3.19 (.81)	7.04	< .001
Structured Knowl.	3.68 (.81)	2.91 (1.26)	3.49 (1.12)	2.86 (.50)	3.065	.003

Note. [a]CCTDI: California Critical Thinking Disposition Inventory

Post hoc comparisons (see Table 9) on the overall Surface Approach scale indicated that Heritage and Bicultural groups scored significantly higher on this scale than participants in the Mainstream Group ($p < .05$). No group differences were found among comparisons of the Heritage and Bicultural groups ($p = .994$), the Heritage and Marginalization groups ($p = .988$), the Mainstream and Marginalization groups ($p = .133$) or the Bicultural and Marginalization groups ($p = .999$). Comparisons on the Surface Motive subscale identified the Heritage, Bicultural and Marginalized groups to score significantly higher than those in the Mainstream Group ($p < .05$). No group differences were found among the Bicultural, Heritage or Marginalized groups when compared against each other in the post hoc Tukey tests ($p > .50$). Further examination of the Judicial Thinking Style scale revealed that the Marginalized Group scored significantly lower on this scale than both the Mainstream and Bicultural groups ($p < .05$). No differences existed among the Heritage versus Mainstream ($p = .924$), Bicultural ($p = .875$), or Marginalized groups ($p = .121$), or between the Mainstream and Bicultural groups ($p = .998$). The Desire for Structured Tasks scale yielded significant comparisons with the Heritage, Mainstream and Bicultural groups all scoring significantly

higher than participants in the Marginalized Group ($p < .05$). No differences were indicated among the Heritage and Mainstream groups ($p = .387$), the Heritage and Bicultural groups ($p = 1.00$), or the Mainstream and Bicultural groups ($p = .279$). Post hoc comparisons on the Desire for Structured Knowledge scale indicated no significant group differences between groups, the difference between the Heritage and Mainstream groups being the closest to significance ($p = .067$). Lastly, the California Critical Thinking Disposition Inventory showed group differences among three comparisons. The Mainstream Group scored significantly higher on this measure than both the Heritage and Marginalized groups ($p < .01$). The Bicultural Group also scored higher than the Marginalized Group on this inventory ($p < .01$). No differences were found among the Heritage and Bicultural ($p = .144$), Heritage and Marginalized ($p = .482$), or the Mainstream and Bicultural groups ($p = .630$).

Table 9

Post hoc Comparisons of Group Differences on the R-SPQ-2F and Socratic-Confucian Scales for the Bicultural (B), Mainstream (M), Heritage (H) and Marginalized (MR) Sub-Sample

Measure	Group Comparisons	*p*
	Revised-Study Process Questionnaire-2 Factor ($n = 84$)	
Deep Approach	B = M = H = MR	*ns*
Surface Approach	H, B > M	$p < .05$
Deep Motive	B = M = H = MR	*ns*
Deep Strategy	B = M = H = MR	*ns*
Surface Motive	H, B, MR, > M	$p < .05$
Surface Strategy	B = M = H = MR	*ns*

Socratic Measures (n = 84)		
Judicial Thinking Style	M, B > MR	p <.05
Private Questioning	B = M =H = MR	*ns*
Public Questioning	B = M = H = MR	*ns*
Self-Generated Ideas	B = M = H = MR	*ns*
CCTDI[a] subset	M > H, MR	p < .05
	B> MR	p < .05
	H = B	*ns*
	M = B	*ns*
Confucian Measures (n = 84)		
Desire for Structured Tasks	H, M, B > MR	p <.05
Desire for Structured Knowledge	B= M =H = MR	*ns*

Note. Tukey HSD values used to determine pairwise significance

[a]CCTDI: California Critical Thinking Disposition Inventory

B: Bicultural Group; M: Mainstream Group; H: Heritage Group; MR: Marginalized Group

Regression Analysis: Prediction within the Framework

Stepwise multiple linear regression analyses were employed in an attempt to further determine and understand the relationship of acculturation, among other potential predictor variables, within the Confucian-Socratic framework. Regression analysis permits a predictive relationship to be examined among variables contributing to the framework. Predictor variables included in the regression equation were (a) the Vancouver Index of Acculturation (VIA) scores on both scales, (b) number of years of residence in Canada, (c)

age, and (d) gender of participants. Results shown in Table 10 indicated level of acculturation to be the most important predictor of scores on seven of the dependent variables for the Chinese students in group one (n = 101), thus reiterating the importance of taking the level of acculturation into account in understanding the approaches to learning taken by newly immigrated students. Mainstream scores (MSS) appeared as the only significant predictor of deep and surface approaches to learning, including the surface motive subscale, and the only significant predictor of judicial thinking styles and generating ideas. Heritage scores (HSS) were suggested to be the most crucial predictor for the two scales examining the desire for academic structure. However, when predicting the desire for structured tasks, scores on the Mainstream scale and gender also made a significant contribution. Age was the most significant predictor of a deeply motivated approach to learning, followed by a more mainstream acculturative position. Gender was most important in predicting scores on public questioning, while the number of years lived in Canada made a significant contribution to the California Critical Thinking Disposition Inventory scores followed by scores on the MSS of the VIA. None of the independent variables included in the stepwise regression contributed significantly to the deep and surface strategy subscales of the R-SPQ-2F, or to the private questioning scale (see Table 10).

Table 10

Group 1: Significant Regression Models for the Predictor Variables of Mainstream Subscale (MSS), Heritage Subscale (HSS), Age, Gender and Life in Canada on the Dependent Measures.

Measures	Predictors	Beta	r	R^2	F	(df)
Deep Approach*	MSS[a]	.237	.237	.056	5.89	(1, 99)

Surface Approach*	MSS	-.223	-.223	.050	5.204	(1, 99)
Deep Motive**	Age	.210	.250	.100	5.44	(2, 98)
	MSS	.198	.240			
Surface Motive**	MSS	-.313	-.313	.098	10.77	(1, 99)
Judicial Thinking Style**	MSS	.319	.319	.102	11.20	(1, 99)
Public Questioning**	Gender[c]	.289	.289	.084	8.86	(1, 97)
Self-Generated Ideas**	MSS	.297	.297	.088	9.57	(1, 99)
DST[d]**	HSS[b]	.422	.478	.347	16.81	(3, 95)
	MSS	.293	.362			
	Gender	-.258	-.152			
DSK[e]**	HSS	.297	.297	.088	9.59	(1, 99)
CCTDI[f]**	Life in Canada	.365	.465	.257	16.42	(2, 95)
	MSS	.226	.387			

Note.[a] MSS: Mainstream Subscale, [b]HSS: Heritage Subscale

[c]Gender: Predictor variable represents a gender difference on the dependent measure whereby a positive Beta weight indicates a greater male difference, while a negative Beta weight indicates a greater female difference.

[d]DST: Desire for Structured Tasks

[e]DSK: Desire for Structured Knowledge

[f]CCTDI: California Critical Thinking Disposition Inventory

** $p < .01$, * $p < .05$

When Group 2 (CACHN) was examined (n = 24), only the MSS scores contributed to the prediction of deep strategy and public questioning. None of the predictor variables included in the stepwise regression contributed significantly to any of the other dependent variables, aside from age, which contributed second to public questioning.

As Group 3 consisted of Caucasian Canadian participants (n = 94), the level of acculturation did not play much of a role in the creation of a predictive model for each of the dependent variables. Age and gender were the primary predictors of influence on the dependent variables (see Table 11). Age was the only significant predictor for the overall deep and surface approach to learning as indicated by the R-SPQ-2F, indicating older students to implement a deeper approach, while younger students implement a more overall surface approach. When broken down into its subscales, age turned out to be the primary predictor for the use of a deep strategy, indicating older students to utilize a deeper strategy, while younger students' learning was found to be influenced by more surface motivators. Level of acculturation was found to be the strongest predictor of the utilization of a surface strategy indicating those acculturated more to a heritage dimension to also be more likely to use surface strategies.

The California Critical Thinking Disposition Inventory was also most influenced by age, indicating older students to be more disposed to critical thinking than younger students. Judicial thinking style, private and public questioning and the consideration of self-generated ideas were most strongly influenced by gender indicating males to score highest on all measures. Age was a significant second predictor of judicial thinking styles and generating ideas, while acculturation level on the mainstream dimension was a significant secondary influence on public questioning. The number of years lived in Canada and the mainstream

dimension of acculturation were most influential in the prediction of desire for structured tasks. None of the independent variables entered played a significant role in the prediction of a desire for structured knowledge, or in determining the use of deep motivators in approaches to learning.

Table 11

Group 3: Significant Regression Models for the Predictor Variables of Mainstream Subscale (MSS), Heritage Subscale (HSS), Age, Gender and Life in Canada on the Dependent Measures.

Measures	Predictors	Beta	*r*	R^2	*F*	(*df*)
Deep Approach*	Age	.213	.213	.046	4.39	(1, 92)
Surface Approach*	Age	-.246	-.246	.061	5.93	(1, 92)
Deep Strategy*	Age	.235	.235	.055	5.37	(1, 92)
Surface Motive**	Age	-.294	-.294	.087	8.73	(1, 92)
Surface Strategy*	HSS[a]	-.211	-.211	.044	4.28	(1, 92)
Judicial Thinking Style**	Gender[c]	.333	.299	.154	8.30	(2, 91)
	Age	.258	.213			
Private Questioning*	Gender	.258	.258	.067	6.57	(1, 92)
Public Questioning**	Gender	.219	.247	.101	5.02	(2, 89)
	MSS[b]	-.202	-.233			
Self-Generated Ideas**	Gender .273	.246	.100	5.05	(2, 91)	
	Age	.201	.164			
DST[d]**	Life in Canada	.252	.258	.129	6.71	(2, 91)

	MSS	.249	.255			
CCTDI[e]*	Age	.213	.213	.046	4.30	(1, 90)

Note. [a] HSS: Heritage Subscale; [b] MSS: Mainstream Subscale

[c]Gender: Predictor variable represents a gender difference on the dependent measure whereby a positive Beta weight indicates a greater male difference, while a negative Beta weight indicates a greater female difference.

[d]DST: Desire for Structured Tasks

[e]CCTDI: California Critical Thinking Disposition Inventory

** $p < .01$, * $p < .05$

Chapter V

Discussion

Support is modest for the Confucian- Socratic framework, as presented by Tweed and Lehman (2002), based on the current study's findings. The direction of many of the findings does not uniformly follow the general linear hypothesis as originally proposed by Tweed (2000). The data on the Canadian Born Chinese students challenged the previously identified linearity of the Confucian-Socratic framework. However, we must remain very cautious in our interpretations of this group's influence within the framework as only a small sample size was drawn in comparison to that of the Chinese and Caucasian Canadian samples used. Furthermore, the results of this sub-sample offer an interesting perspective into the potential academic advantage a bicultural individual may have over his/her mainstream, heritage and marginalized peers. Lastly, the linear regression model provided some predictive power for acculturations' role within the framework, along with the other significant predictor variables found. Each will be considered below.

Research Question 1

Group comparisons: Deep and surface approaches to learning. Results on the Revised Study Process Questionnaire were contradictory to the findings reported by Tweed (2000) in many ways. Not all scores followed the linear prediction as found by Tweed. Scores indicated no group differences to occur on any of the measures examining deep approaches to learning. This finding, while contradictory to Volet, Renshaw, and Tietzels' (1994) and Tweed's (2000) work, joins the company of Biggs (1992), Kember and Gow (1991), and Ramburuth and McCormick (2001) who also found that Asian students scored equally, if not higher to Western students, in the utilization of a deep approach.

With respect to the utilization of an overall surface approach to learning, results were consistent with Tweed's (2000) and Volet et al.'s (1994) findings indicating that both Chinese and Canadian Born Chinese students use a higher overall surface approach than students in the Caucasian Canadian Group. When the scale was broken down into its subscales, findings on the Surface Strategy and Surface Motive subscales further clarified the above findings revealing that both Chinese-influenced groups scored higher than Caucasian Canadian students on surface motivators. However, on surface strategies, Canadian Born Chinese students scored significantly higher than both the Chinese and Caucasian Canadian students, who subsequently did not differ significantly from each other. This latter finding is consistent with Balla, Stokes, and Stafford's results (1991, as cited in Volet & Renshaw, 1996) that found no group differences on the surface strategy subscale between Singaporean students and local Australian students with regards to a narrow focus of study. It also shows how the Canadian Born Chinese students confuse the linearity of the framework, scoring higher than both the Chinese and Caucasian Canadian students. According to Biggs' interpretation of these scales (1987, as cited in Kember & Gow, 1991), these findings lend themselves to the possible explanation that both the Chinese and Canadian Born Chinese students in this sample study with the motivation of meeting requirements at a minimal level, while also balancing working too hard with failing. On the other hand, only the Canadian Born Chinese students were found to adopt a more narrow surface strategy in their studies, targeting the bare essentials of required learning through rote learning and reproduction (Biggs, 1987, as cited in Kember, 1991). Arguably, one downfall of the majority of these prior studies mentioned is that they did not utilize a middle ground sample for further

investigation, leaving only Tweed's (2000) work with Canadian Born Chinese students for comparison.

Group comparisons: The Confucian-Socratic framework. Significant group differences were found on four of the seven scales used to assess the Confucian- Socratic framework. Once again, the Canadian Born Chinese group confounded the linear hypothesis of the framework by scoring significantly lower than Chinese students on the Socratic scales of public questioning and generating ideas, on which they were hypothesized to score higher. These findings suggest that Chinese students from China are more likely to publicly question and challenge class content than their Canadian Born Chinese counterparts. In addition, they are also more likely to generate their own theories, hypotheses and knowledge concerning classroom material than the Canadian Born Chinese students. The mean group differences on the desire for structured knowledge and the subset of items from the California Critical Thinking Disposition Inventory (CCTDI) followed suit to Tweed's findings with Chinese students falling on one end of the continuum, followed by Canadian Born Chinese students falling in the middle, and Caucasian Canadian students falling at the opposing end.

However, statistically significant group differences on post hoc comparisons were reserved only for Chinese and Caucasian Canadian students on the desire for structured knowledge, indicating that Chinese students' *desire* for academic structure is significantly higher than that of Caucasian Canadian students (i.e. prefer relying on others to validate their decision making and telling them what is correct versus incorrect). All groups on the CCTDI statistically differed from each other according to Tweed's linear hypotheses, suggesting that Chinese students' *disposition* (not ability) towards critical thinking tasks is

lower than that of Canadian Born Chinese students, which in turn, is lower than that of Caucasian Canadian students.

Similar to Tweed's (2000) study, the Desire for Structured Tasks scale did not yield significant results in the present study. Yet, unlike Tweed's study, neither did the Judicial Thinking Style scale or the Private Questioning scale. These non-significant findings may indicate two things. First, these groups may in fact differ and a Type II error has occurred due to the low observed power to detect differences (measurement error) or the larger within-culture relative to between-culture variance. Second, all groups are in fact equal in their propensity to privately question the validity of class content, in their tendency to rate and compare theories, and in their desire for structured and rule-guided tasks in academic settings. Therefore, an initial assessment error in what constitutes Socratic versus Confucian learning today may have been made. Each will be considered in the following discussion.

Upon examination of each of the non-significant findings, both the observed power and effect sizes were found to be low. The former suggests that the probability of detecting group differences, should they occur, is low. As these measures were newly created or have been adapted by Tweed (2000), measurement error may be the underlying cause behind the null findings as an artifact of instrumentation. Perhaps the measures are failing to capture their intended purpose. Alternately, the low observed power could be a result of a larger within-culture variance than between-culture variance. As suggested by Tweed (2000), scenarios in which there lies considerable within-culture variance call into caution any cross-cultural comparisons made, as one cannot easily identify or classify a student's learning approach based upon cultural background alone. In addition, it provides a strong argument

for the need for studies examining within-group differences relative to learning approaches as Smith (2001) found within-culture differences when examining various groups within China.

In addressing the second possible explanation, On (1996) argued, "There is no lack of stress on the significance of reflective thinking *(private questioning)* in the process of learning in the Confucian tradition" (p. 35). Furthermore, Confucius himself emphasized in *The Mean* (20:20, as cited in On, 1996), the need for "studying extensively, enquiring carefully, pondering thoroughly, sifting clearly, and practicing earnestly", which could arguably be equated with the Socratic need for the rating and evaluation of theories. This is a very critical discussion that challenges the conceptual premise of studies by Tweed and others as the argument might arise that these constructs in fact do not differ significantly between Eastern and Western philosophy and have erroneously been placed in the framework as potential dichotomies. Only additional testing can assist in determining which option best answers the question of the null findings within these measures.

Research Question 2

Acculturation: The issue of the unidimensional versus bidimensional approach. Of particular interest to the present study was the comparison of a bidimensional versus unidimensional approach to the study of acculturation and the potential role acculturation plays in an academic context. Each will be addressed in order.

Post hoc comparisons in the present study add to the strong argument for the need for a bidimensional approach to the study of acculturation as reviewed by Berry (1997), and Ryder, Alden, and Paulhus (2000). The Vancouver Index of Acculturation (VIA) revealed Canadian Born Chinese students to score equally to the Chinese students on the Heritage subscale (HSS), and equally to the Caucasian Canadian students on the Mainstream subscale

(MSS), while the Chinese and Caucasian students differed significantly from one another on both scales. The results of the Cultural Preference Inventory (CPI) serve to offer even greater support for a bidimensional approach to acculturation, when the unidimensional measure was utilized it only picked up part of the picture indicating that both the Chinese and the Canadian Born Chinese students scored higher than the Caucasian Canadian students. It did not distinguish between any of the existing acculturating differences between the Chinese and Canadian Born Chinese students that were found only after the measure was divided into a bidimensional scale. The Cultural Preference Inventory Heritage (CPI-H) and Cultural Preference Inventory Western (CPI -W) yielded the same results as the HSS and MSS of the VIA, serving to once again reinforce the need for a bidimensional measure of acculturation as the unidimensional measure is unable to detect those individuals that are bicultural (high on both) or marginalized (low on both). Again, this becomes problematic as these two arguably different individuals both show up at the midpoint of a unidimensional model of acculturation (Ryder, Alden, & Paulhus, 2000), leading one to question the validity of a unidimensional approach to the study of acculturation strategies.

Research Question 3

Academic acculturation: The case of the bicultural and marginalized individual. In addressing acculturation's role in an academic context pertaining to the Confucian-Socratic framework and in assessing the bicultural and marginalized participants' placement within the framework, results from the compiled sub-sample indicated some interesting theoretical considerations. While about half of the measures yielded statistically significant p values, it remains important to consider the direction of the means on all scales at this theory building stage as the observed power to detect group differences was found to be low for the non-

significant measures, but quite high on the statistically significant measures. The problem may be then that differences exist; however the power to detect the differences was lacking due to relatively small sample sizes within each of the four categories, potential measurement error or other sampling variability. For this reason, a brief discussion of the general direction of the means will follow before addressing the statistically significant group comparisons discussed in the results section.

Practical significance of the sub-sample's findings. When mean differences were examined among groups and measures, it was found that the Bicultural Group scored the highest on the Socratic scales of Generating Ideas and Judicial Thinking styles. They scored second highest on the public and private questioning scales and the California Critical Thinking Disposition Inventory behind the Marginalized and Mainstream groups respectively. The Bicultural Group also scored the highest on all Deep scales of the R-SPQ-2F. Interestingly, they also ranked in the top two on both the Confucian scales, scoring highest on the Desire for Structured Tasks scale and second highest on the Desire for Structured Knowledge scale. Furthermore, the Bicultural Group also scored high on the Surface Approach scale just behind the Heritage Group and highest on the Surface Strategy scale of the R-SPQ-2F; see Table 12 for a summary of the rankings. This finding lends itself to the argument that indeed perhaps the bicultural student does have an academic advantage over his/her Heritage, Mainstream and Marginalized peers in that he/she is able to engage in frame-switching (Hong et al., 2000) and utilize both Socratic and Confucian approaches to learning equally well depending on the situational demands encountered. In doing so, a bicultural student could arguably flex his/her learning approach to whatever was most beneficial for the circumstances presented, therefore possessing an academic advantage over

peers (i.e., the advantage of being academically bicultural). Furthermore, when this Bicultural group was examined in regards to the two frame-switching items asked on the questionnaire, 74% (17/23 participants) openly agreed that their behaviour changed depending on if they were with persons from their heritage culture versus persons from the mainstream North American culture, thus lending further support to the frame-switching hypothesis.

When the case of the Marginalized participant was examined, mean scores indicated lower placements on both the Socratic and Confucian measures (indicating that these participants did not engage in either end of the framework). Participants scored lowest on the Socratic measures of the CCTDI and the Judicial Thinking Style scale, and second to lowest on the Generating Ideas scale. However, these Marginalized participants also scored the highest on the Socratic measures of private and public questioning. On the Confucian side, Marginalized participants scored the lowest out of all groups on both the Desire for Structured Tasks and the Desire for Structured Knowledge scales; see Table 12 for a summary.

One possible explanation for these results can be drawn from the findings of Marcia (1980) and his work with identity development. Marcia proposed an identity development model that is based on the exploration and commitment level that one has made to various aspects of one's life. It could be hypothesized that those participants falling into the Marginalized category are experiencing a cultural identity moratorium defined as being in the midst of a cultural identity crisis. According to Marcia (1980), during a period of moratorium, persons are actively engaging in identity exploration with only vague or absent commitments to any particular identity. This might be a potential explanation as to why

these participants score the highest on the private and public questioning scales as they are currently in a phase of exploring, challenging and questioning their own cultural identity. It might also explain why they score the lowest on the desire for academic structure, as these students arguably are fleeing structure in their quest for personal cultural exploration.

The R-SPQ-2F means indicated high scores on the Surface Motive, Surface Strategy and Deep Strategy subscales for the Marginalized participants, while also scoring low on the overall Deep Approach and Surface Approach scales and Deep Motive subscale. These varied placements on the scales of the R-SPQ-2F may indicate a person in an exploration phase, attempting different approaches to learning utilizing a mixture of strategies for varying motivational reasons.

The Heritage group tended to fall into its predicted rank with mean score placements on the Socratic scales falling at the lower end and Confucian scores falling at the higher end. They also ranked the highest on the overall Surface Approach scale and lowest on the overall Deep Approach scale of the R-SPQ-2F. Participants falling into the Mainstream category placed lowest on the overall Surface Approach scale and ranked second on the overall Deep Approach scale behind the Bicultural Group. They also ranked first on the CCTDI and second on the Judicial Thinking Style scales, but placed last on three of the Socratic scales, namely the generating ideas scale and the private and public questioning scales. On the Confucian scales, Mainstream participants ranked third on both the Desire for Structured Tasks and the Desire for Structured Knowledge scales, just ahead of the Marginalized group, which scored lowest (See Table 12).

Table 12

Mean Group Rankings of the Sub-sample on the Confucian-Socratic Measures

Group			
Bicultural			
1	2	3	4
Generating Ideas	Public Questioning	Surface Motive	
Judicial Thinking	Private Questioning		
Deep Approach	CCTDI[b]		
Deep Strategy	DSK[c]		
Deep Motive	Surface Approach		
DST[a]			
Surface Strategy			
Marginalized			
1	2	3	4
Public Questioning	Surface Strategy	Generating Ideas	CCTDI
Private Questioning	Deep Strategy	Deep Approach	Judicial Thinking
Surface Motive			Deep Motive
			DST
			DSK
Heritage			
1	2	3	4
Surface Approach	Deep Motive	Judicial Thinking	Deep Approach
Surface Motive	Generating Ideas	Private Questioning	Deep Strategy

DSK	DST	Public Questioning	
		CCTDI	
		Surface Strategy	
Mainstream			
1	2	3	4
CCTDI	Deep Approach	Deep Motive	Public Questioning
	Judicial Thinking	Deep Strategy	Generating Ideas
		DST	Surface Approach
		DSK	Surface Motive
			Surface Strategy
			Private Questioning

Note. [a]DST: Desire for Structured Task scale

[b]CCTDI: California Critical Thinking Disposition Iventory

[c]DSK: Desire for Structured Knowledge Scale

For the most part, the mean rankings for each of the groups theoretically make sense and once again give rise to the importance of the acculturative process within the Confucian-Socratic framework. Cultural group membership is not sufficient on its own in this kind of cross-cultural research, nor is a unidimensional measure of acculturation, as it misses the potential impact or role that the bicultural and marginalized individuals might have. Although significance was not reached among all measures and among all group comparisons on the ANOVA and post hoc tests of this sample, again perhaps due to problems relating to sample size and thus power, the direction of the mean scores for each

group lends itself to the need for further research to be completed to further verify these findings and solidify theory. On that note, a discussion of the group comparisons found meeting statistical significance will now be explored.

Statistically significant findings: The sub-sample. Findings on the overall Surface Approach scale support the Confucian-Socratic framework in that those persons acculturated highly on the Heritage measures of acculturation (Heritage and Bicultural groups) report utilizing a surface approach more than those scoring low on the Heritage measures (Mainstream group). Specifically, the Heritage, Bicultural and Marginalized groups were more inclined to report using surface motivators in their approaches to learning than the Mainstream Group, but groups did not differ in their likelihood of employing surface strategies in their learning approaches. Non-significant findings on all Deep Approach scales run counter to the Confucian-Socratic predictions that those associating themselves more with their heritage traditions would score lower on deep approaches than those associating themselves with more Mainstream Canadian culture. However, once again these findings are consistent with previous findings indicating either non-significant (Biggs, 1992) or significant differences in the opposing direction to occur (Kember & Gow, 1991; Ramburuth & McCormick, 2001). In contrast to the main group findings, the Judicial Thinking Style scale yielded significant group differences in this type of critical thinking, indicating the Marginalized Group's tendency to rate and evaluate ideas to be lower than the Mainstream and Bicultural groups.

This finding may be due in part to the small number of people ($n = 12$) falling into the Marginalized level of acculturation. When these 12 people are placed within the main sample of Chinese and Canadian Born Chinese students, the effects of these unique

participants are lost. Only after the main sample was divided into its four most extreme levels of acculturation could the effects of the Marginalized individual been seen within the framework. This Marginalized effect was seen again on the desire for structured tasks where students in the Marginalized Group scored significantly lower again on this measure than the Heritage, Mainstream and Bicultural groups. Akin to the findings in the main analysis, no other significant group differences were found regarding the rating and evaluation of theories, or the desire for structured tasks among the other three groups. This serves to re-emphasize the possibility that these alleged Western Socratic learning practices actually belong in both philosophies of learning as On (1996) argued. The findings on the desire for structured knowledge were similar to those of the main findings indicating the strongest group difference to occur between the Mainstream and Heritage groups (parallel to the Caucasian Canadian versus Chinese group finding). Thus it would seem that the Confucian measures examining the desire for structure in academic settings is reserved for the desire for structured knowledge (i.e., preference is for instructor-guided answers to questions) and not for the desire for structured tasks (i.e. preference for structured and rule-guided tasks). Lastly, the finding that the Mainstream Group reported a higher disposition towards critical thinking than either the Heritage or Marginalized groups on the CCTDI is in line with the findings of the main group analysis where Caucasian Canadians (arguably Mainstream) were found to score higher on this measure than both Chinese influenced groups. However, the Bicultural Group differed significantly only from the Marginalized Group and not from those in the Mainstream or Heritage groups, indicating their disposition towards critical thinking to be similar enough to one another to warrant non significant findings between these groups.

Regression analysis: Acculturations' role. Level of acculturation arguably plays an essential role when examining cross-cultural transitions within immigrant populations, yet it has not been considered within the approaches to learning domain until now. Within Group 1, our immigrant Chinese sample, level of acculturation played a key role in predicting the approaches to learning utilized by these students, whether related to deep and surface approaches or to the Confucian-Socratic approaches to learning framework. When an acculturation level presiding within the mainstream Western culture was dominant for Chinese students, it indicated these students to utilize an overall deeper approach to learning, while also employing a more judicial thinking style, as well a higher disposition towards critical thinking and self-generation of individual ideas. On the other hand, when an acculturation level presiding within their heritage culture was present, it predicted a higher desire for structured knowledge and tasks within academic settings. When comparison was made to our Caucasian Canadian sample (Group 3), not surprisingly level of acculturation did not make a significant contribution to their approaches to learning as these students were born and raised in Canada. Rather age and gender were the most important predictors in determining which approach to learning was preferred on most measures. However, level of acculturation did play a role in prediction of surface strategies, public questioning and the desire for structured tasks indicating that there perhaps exist multi-cultural individuals within our Caucasian Canadian sample that play out a unique role within approaches to learning. This latter finding calls for further exploration as Smith (2001) found differences in approaches to learning to occur within Chinese culture. The same arguably could be true for the case of Western Canadian culture.

General Conclusions

The purpose of this study was to confirm the utility of a Confucian-Socratic framework in examining approaches to learning with respect to culturally Eastern and culturally Western students in Canadian post secondary settings. In light of the findings discussed, argument exists for both support of, and hesitation in, the use of the Confucian-Socratic framework in understanding cross-cultural differences in approaches to learning within this sample. The research findings linked to the Canadian Born Chinese students, while limited due to sample size, nonetheless challenge the validity of the linear model put forth by Tweed (2000), as this group was frequently shown to score higher or lower on measures on which they were expected to score in the opposite direction. Furthermore, the null findings between the Chinese and Caucasian Canadian students with regards to many of the "Confucian" and "Socratic" measures also calls into question the utility of the framework when examining cross-cultural differences within these learning philosophies. Meanwhile, findings linked to the sub-sample and regression analysis examining acculturations' effect within the framework provide a strong case for the inclusion of bidimensional acculturation measures when examining cross-cultural differences in approaches to learning. Not only do there exist potential advantages for the bicultural learner to adapt to either learning philosophy based on the situational demands or cues presented, it is also important to acknowledge that these advantages cannot be found within more general group cross-cultural comparisons or with the sole use of unidimensional measures of acculturation. Chinese students have been described as cue seekers *par excellence* (Miller & Parlett, 1974, as cited in Tang & Biggs, 1996). If they, therefore, perceive an examination to require primarily rote learning, then they will rote learn despite this method not being their preferred method of

learning (Tang and Biggs, 1996). The present study arguably supports this notion as the bicultural students were found to score high on both surface and deep approaches to learning, while also scoring high on both the Socratic and Confucian measures.

Meanwhile the regression analysis emphasizes the importance of the consideration of the level of acculturation among immigrant students as this was shown to be a key predictor in establishing the different approaches taken depending on which dimension (s) of acculturation in which they were currently functioning.

Limitations and Implications of the Present Study

Methodological limitations. As with any study, methodological limitations exist. The sole use of self-report measures limits the conclusions that can be drawn as often what one says and what one does lead to very different conclusions. For example, Volet and Kee (1993, as cited in Volet & Renshaw, 1996) found Singapore students to perceive themselves as more reserved than local Australian students within tutorial group situations, however when objectively observed, no differences were found in the quantity or types of participation between these two groups in tutorials (Volet & Renshaw, 1996). Thus we must remember to remain cautious in our interpretations of research relying solely on self-report measures.

Kirk (1996) has argued that researchers should not only be so concerned with the rejection of the null hypothesis, but also need to examine the "practical significance" of the results obtained. Cohen (as cited in Howell, 1992) presented the following interpretation of eta squared when examining effect sizes: small effect (.01), medium effect (.06) and large effect (.14). When the practical significance or effect sizes of the present study's findings were considered from the main sample, although power was high enough to reject the null

hypothesis, the effect size was generally small for the public questioning scale, thus indicating a great deal of within-culture variability on this particular dimension. Within the other statistically significant scales, the magnitude of effect size was medium to high, indicating a more solid relationship between the independent (groups) and dependent (measures) variables. The remaining non significant measures yielded both low power and low effect sizes, calling into question either the validity of the measures used to assess the constructs of interest or the validity of the constructs themselves with reference to the framework. Once again caution must be exercised during interpretation.

Other potential limitations surround the sampling method (purposive sampling) utilized. As this study falls under the causal-comparative category, random sampling and random assignment could not be used. Because of this, sampling bias and representation bias may have occurred and be problematic for the external validity of the study. This is especially a concern for the Canadian Born Chinese group as the sample size was also quite small. Furthermore, caution must be exercised when considering the generalizability of the results obtained. As the sample came from community college students within a single British Columbia city (Coquitlam), the generalizability should remain within this academic setting and within this demographic. It would be presumptuous to assume that students from any of the cultural backgrounds examined within Coquitlam are equivalent to those from other parts of the world, Eastern or Western. Also, as no randomization procedures could be utilized, the third variable problem also arises. We must remain aware, as with any correlational research, that our findings could be related to some other factor (s) that we have failed to include within our study.

Educational implications. When considering the present study's application to the instructional and learning environment within culturally Western academic institutions, it serves to increase our awareness that differing approaches to learning do exist and may arise in part from cultural differences in what is deemed important to the learning process as originally expressed by Confucius and Socrates. It also reminds us, as instructors, to refrain from making quick judgments regarding our culturally diverse students as we may be misinterpreting the purpose behind their actions or lack thereof as reiterated by Kember (2000). What we must try to do is acknowledge our own limitations based upon the cultural lens we are viewing through and be open to viewing through alternate lenses, as this is what our culturally diverse students must also learn to do within our classrooms. The current study lends support to this latter observation as the level of acculturation was found to play an important role in predicting the learning approaches of Chinese immigrant students. Depending on which cultural lens the students were currently functioning in predicted how they would approach learning, whether it was a desire for more structured knowledge, or taking on a more surface or deep approach. Additionally, the case of the bicultural student lends further support to this notion as these students have the potential capability of operating from both cultural lenses as they see fit as was seen in the sub-sample.

Research implications. As the Canadian Born Chinese students challenged the framework's linear hypotheses as proposed and found by Tweed (2000) on a number of occasions, future research in this area needs to further address the case of the Canadian Born Chinese student's place within the framework. Furthermore, as most studies in the past have also failed to include a middle sample like the Canadian Born Chinese students, future research needs to include these middle samples for additional comparative purposes as its

influences thus far have shown to be rather revealing. In addition, the bicultural and marginalized students' place within the framework needs to be confirmed with a larger sample size. Preliminary findings of the present study offers support to the frameswitching hypothesis proposed by Hong et al. (2000), but arguably require further affirmation with a larger sample of students within each of the four acculturative categories as well. As this was the first study examining acculturations' role within the Confucian-Socratic framework, additional regression analysis with other samples needs to completed to further confirm how its role plays out on each of the dimensions within the framework, especially within new immigrant populations.

Theoretical implications. The theoretical implications of the present study rest within the foundations on which it was originally formed. We must extend caution, as depending on the cultural lens one is viewing through, the ideas pertaining to what constitutes the Confucian-Socratic framework surrounding learning may be culturally construed as well. This was seen by the interpretations of private questioning and theory rating and evaluation by Tweed and Lehman (2002) and On (1996). Tweed and Lehman emphasized the importance of private questioning and evaluation within the Socratic framework, while On placed it within the realm of Confucian thought under reflective thinking. Meanwhile results obtained in the current study indicated null findings between cultures on the scales tapping into these attributes, suggesting that significant overlap may exist on at least these dimensions within the framework. As Tweed and Lehman (2002) did acknowledge the potential existence of overlap between Eastern and Western philosophies of learning, the current study confirmed its occurrence at least in part. So it would seem that the lens we are currently viewing through will determine, at least in part, the theoretical roots

of our contrived theories. We must, therefore, always remember our cross-cultural lenses when developing our cross-cultural theories.

Concluding Remarks

In conclusion, when examining cross-cultural differences, or the variation seen between cultures, it becomes difficult to establish firm theoretical hypotheses as the within-culture variability recognized can be paramount. Not only can the within-group variability be large, but so can the interpretations of the theoretical foundations that theories are constructed upon in the first place. Nonetheless, the Confucian-Socratic framework provides a great resource in our attempt to begin to understand the observed cultural differences seen between Eastern and Western philosophies of learning today. As with any theory, refinement through additional research will give rise to new understanding of where and how cross-cultural differences exist within the realm of education. Overall, the present study serves to open the door a crack further into the unruly domain of cross-cultural differences (or should we say similarities) in approaches to learning. As the global village continues to grow and the opportunity for cross-cultural experiences with persons around the world becomes commonplace, any advancement in cultural understanding only serves to ease the struggles, misunderstandings, and language barriers that often accompany when different cultures attempt to live, work and study together.

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