

LEARNING CONSIDERED WITHIN A CULTURAL CONTEXT:
CONFUCIAN AND SOCRATIC APPROACHES

by

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ABSTRACT

A Confucian-Socratic framework provides a structure for analyzing culture-influenced aspects of academic learning. It is argued that these ancient exemplars model approaches to learning that continue to differentiate students within a modern Canadian postsecondary context. Specifically, it is argued that Chinese cultural influence increases the likelihood that a student will report Confucian learning beliefs and behaviors and that Western cultural influence increases the likelihood that a student will report Socratic learning beliefs and behaviors. Socrates valued private and public questioning of widely accepted knowledge and expected students to evaluate others' beliefs and to generate and consider their own hypotheses. Confucius valued effortful and pragmatic acquisition of essential knowledge. Confucius also valued poetic summary and behavioral reform. Two self-report studies, one (pilot) expert study, and one work sample study assess the utility of this framework in a Canadian context. The self-report studies provide evidence that the framework is reflective of modern cultural differences as expressed in a Western postsecondary context; however, the work sample study produced mainly null results. Consequences of cultural differences in Western postsecondary contexts are discussed.

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CHAPTER 1: LITERATURE REVIEW

Culture provides tools, habits, and assumptions that pervasively influence human thought and behavior, and the task of learning does not escape this influence (Brislin, Bochner, & Lonner, 1975; Bruner, 1996; Greenfield, 1997). As a result, students' conceptions of their academic role and students' behaviors in academic contexts are likely to a large extent culturally constructed. However, students and educators alike may be unaware of these cultural influences affecting any given student. Treatment of students of Asian descent in North American educational institutions has at times been far from exemplary (Wollenburg, 1978/1995), and this poor treatment may have resulted in part from a lack of understanding among educators and policy makers. Increased understanding of distinct approaches to learning can potentially lead to institutional changes that improve education for all students.

A labeling clarification first must be addressed. The term "Western" as a cultural label can be problematic (see Lillard, 1998) because literally it denotes the entire Western hemisphere, thereby including many more people than is usually implied by the use of the category. Rather than using Lillard's alternative term, "European American," which excludes, for example, Canadians and Australians, we retain the shorthand term Western, but with the proviso that a more adequate description of the group would be "Western English speaking individuals (e.g., American, Australian, Canadian) of European or African descent."

In this dissertation, we compare and contrast culturally Chinese and culturally Western approaches to learning. Confucian aspects of Chinese learning have been discussed previously (e.g., Biggs, 1996b; Lee, 1996; Reagan, 1996), but the addition of a Socratic foil is informative. These ancient exemplars provide models that help organize previous findings and generate hypotheses regarding culturally Chinese and culturally Western learners in the modern context. Although the discussion focuses primarily on learning in North American post-secondary

institutions, the framework is applicable to other learning contexts as well.

Nisbett, Peng, Choi, and Norenzayan (in press) have also constructed a useful ancient Greek versus ancient Chinese framework for comparing modern Western and East Asian cultures, but their framework integrates more Taoist rather than Confucian elements. Taoism has been described as “a severe critic of Confucianism” (Chan, 1963, p. 136). Whereas Confucius was humanistic and sought to achieve societal harmony by encouraging virtuous activity, Lao Tzu, a central figure in Taoism, was something of a mystic who praised nonconformity and inaction. Nisbett et al. have emphasized the holistic orientation of Taoist thought and presented evidence that this type of thinking may occur more frequently among people influenced by Chinese culture. In contrast, the current framework relies on Confucius rather than Taoism and focuses particularly on approach to learning in a Canadian postsecondary context rather than on everyday patterns of holistic cognition. Not all Confucian and Taoist elements are mutually exclusive; elements from both, such as holistic cognition and respect for tradition, may tend to be present in culturally Chinese individuals, but the current framework focuses on the Confucian rather than Taoist aspects of Chinese culture.

The influence of acculturation on approach to learning will be discussed. If culture influences approach to learning, as will be argued, then people with a mixed cultural background may have access to an especially wide array of approaches to learning. Except where other factors such as language difficulty or racial or cultural discrimination hinder success, individuals of mixed cultural background may tend to possess greater potential for success in a more wide array of learning environments than do unicultural students.

Caveats

It is possible for misinterpretation and even offense to result from the current discussion. Hypotheses of culture-influenced learning styles attracted much controversy when the discussion

focused on African-Americans (e.g., Engelbrecht & Natzel, 1997, Frisby, 1993; Richardson, 1993; Robinson Shade, 1989; Willis, 1992). Controversy, when based on mutual understanding, can be healthy and can lead to intellectual advances, but controversy based on misunderstanding can produce myriad negative consequences. To guard against this possibility, some general issues deserve comment.

Heterogeneity, Not Homogeneity

First, we do not assert that culturally Chinese or culturally Western learners form homogenous groups. Great heterogeneity exists within each of these populations, so there will be many individual exceptions to these patterns of learning within each group. We believe it is important for instructors who become aware of cultural differences in approach to learning to remain cognizant of this heterogeneity within cultural groups; otherwise, they may place inappropriate expectations on particular individuals whether of the dominant or minority cultural group within a particular school. Recognizing diversity, however, need not preclude sensitivity to mean differences between cultural groups (Geertz, 1973; Miller, 1997).

Culture, Not Genetics

Second, genetic influences on learning approaches are neither assumed nor implied in this discussion. Others have tried to examine the relations between race and cognitive variables (Rushton, 1997), but such examinations are politically explosive, extraordinarily difficult, of questionable utility, and not a matter of current interest to this researcher. Inevitably, culture and genetics are naturally confounded: For example, the people most influenced by Chinese cultures obviously also are of Chinese ancestry. For the purposes of the current discussion, the possibility of genetic contributions to cognitive differences is not explored.

Orientation, Not Ability

Third, we do not directly address ability differences between cultural groups. Rather, our

discussion focuses on differences in academic behavior between cultural groups. Admittedly, habitual patterns of behavior eventually may lead to ability differences. Berry's eco-cultural model (Berry, 1976; Sinha, Mishra, & Berry, 1996) supports the contention that cultural context affects cognitive abilities in particular domains, but our objective is to address cultural differences in behavioral tendencies, not differences in ability.

Independent, Not Necessarily Bipolar

Fourth, we do not assume that the Socratic and Confucian approaches to learning are always opposing anchors on a single continuum. Multiple dimensions are represented in this framework and on some dimensions, such as respect for authoritative knowledge, the Socratic and Confucian perspectives seem to anchor opposing ends of a single dimension. On other dimensions, such as affinity for poetic summary, the two orientations could potentially coexist. The precise relations between the Socratic and Confucian dimensions in modern learners are empirical questions that remain to be fully investigated.

Comparison, Not Evaluation

Fifth, we are not attempting to evaluate cultures. Although we assume that truth exists and that some ideas historically taught within each particular culture may be found to be true and others false, we must use care that cultural orientation alone (in the absence of evidence) not lead to intolerance of particular perspectives. Western educators could reactively disparage the Confucian view and likewise for Chinese educators encountering the Socratic approach to learning, whether among students or fellow instructors (Pratt & Wong, 1999). Our position is that in some contexts the Confucian approach to learning will be more adaptive and in other contexts the Socratic approach. Ideally, in our increasingly multi-cultural world students will be able to competently exhibit a range of both Confucian and Socratic learning behaviors. Such flexibility would allow students to function more effectively across different learning contexts.

Description, Not Necessarily Causation

Also, the Confucian-Socratic framework serves a descriptive function and does not presume historical causation between Socrates or Confucius and modern students in the East or West. Historical patterns of causation are difficult to draw even over short periods of time, but near impossible to draw between Confucius, Socrates, and the modern world. Any such pattern of causation would be inevitably complicated because Confucianism has passed through many different incarnations in the East (Berthrong, 1998, Creel, 1949), and because the historical line from Socrates to the modern day West is far from continuous. Confucius and Socrates may have influenced some of the characteristics evident in modern day societies, but such an influence is not presumed by the Confucian-Socratic framework.

Socrates

Though the vast majority of Western scholars probably know of the Socratic method, many may not be well versed in the nature of the person and the doctrines that underlie this approach. Socrates (469-399 B.C.) is thought by some to be the father of Western philosophy, yet he wrote nothing that survives today. Our main records come from Plato, one of Socrates' favorite pupils, who recorded some of the great dialogues engaged in by his teacher. The early dialogues of Plato are thought to be the most representative of Socrates' thought (Press, 1999; Scott-Kakures, Castagnetto, Benson, & Hurley, 1993). The Socratic approach to knowledge as portrayed by Plato has characteristics distinct from the Confucian approach and relevant to the current discussion (Scollon, 1999). In these dialogues, Socrates tended to question his own and others' beliefs, he evaluated others' knowledge, he esteemed self-generated knowledge, he began teaching by implanting doubt, and he sought knowledge as opposed to true belief.

Tendency to Question

Socrates frequently questioned others' beliefs and was proud of this tendency. He felt that

his questioning of beliefs made him superior to others (Plato, trans. 1937a, hereafter cited by the common title *The Apology*). Other men of Athens, Socrates claimed, pretended to be knowledgeable and were sometimes able to fool themselves and others, but Socrates recognized the limits of his own and others' knowledge. He frequently asserted that he actually knew very little (e.g., Plato, trans. 1956, hereafter cited by the common title *Meno*).

Tendency to Evaluate

Socrates did not unthinkingly question and reject the ideas of others, but instead took an interest in carefully examining their knowledge. He evaluated the knowledge of each particular individual by engaging in a dialogue in which he would ask a series of successively deeper and more probing questions. He reported that in these sessions he found most people to be foolish and lacking in knowledge, with the most foolish being the men of highest repute in society. He sought to publicly expose the foolishness of these respected men by engaging in repeated questioning, which became known as the Socratic method. Young men followed Socrates to these displays and took pleasure in watching him humble these proud men. The elite, not surprisingly, resented Socrates, and he was sentenced to death for corrupting the city's youth. A readable and at times humorous record of Socrates' defense at trial is recorded in *The Apology*, while the prelude to and enacting of the death sentence is recorded in *Phaedo* (Plato, trans. 1937b). Socrates refused to give up his tendency to evaluate others' knowledge even on threat of death and offer of mercy conditional on him changing his ways.

Esteem for Self-Generated Knowledge

Socrates held great esteem for self-generated knowledge. He had many students, but he told the court of Athens that he was not responsible for any of his students' beliefs because he never taught them anything (*The Apology*). An extended example of Socrates' teaching technique is recorded in *Meno* in which Socrates with his usual intellectual panache demonstrated that he

could guide even an uneducated slave boy to produce complex geometric principles. Socrates perceived himself to have taught the boy nothing, but merely to have asked the right questions. Socrates likened his role to that of a gadfly who irritated others (*The Apology*). Learning occurred, Socrates believed, when a student was prodded toward knowledge. This type of knowledge generated by the self, even if in response to prodding, was most valued by Socrates in contrast to beliefs that had merely been accepted from others. The nature of this pursuit of truth was individualistic. In a sense, each person had to find truth within themselves. Truth was not prescribed by authority figures and was not socially negotiated, but was found within the self.

Focus on Error in Order to Evoke Doubt

In the Platonic dialogues, Socrates tends to follow a consistent pattern, which begins with a focus on error (Jacobsen, 1999; Press, 1999; Scott-Kakures, et al., 1993). Early in the dialogue, Socrates poses a question that is answered wrongly by his dialogue partner (the partner often is called an interlocutor). After asking the question, typically a request for definition of a term such as beauty, courage, or virtue, Socrates' subsequent questions immediately focus on exposing error in the person's answer.

In *Meno*, after making a slave boy doubt his initial answers to a question of geometry, Socrates commented that the boy had made a step forward in realizing the answer. Socrates seems to have believed that doubt was the first step in attaining knowledge. Because learning, for Socrates, began with doubt, teaching began with implanting doubt. The presumed necessity of doubt explains Socrates' tendency to begin his teaching with a focus on erroneous statements.

Search for Knowledge, Not True Belief

For Socrates, learning, for the elite, should lead to knowledge, not merely true belief. True beliefs are the same as right opinions, and though these true beliefs can lead to appropriate behavior and even effective leadership, they are of limited value according to Socrates. He said

that poets and politicians often possess true belief, but lack the more important possession, namely knowledge. According to Socrates, knowledge exists when a person possesses good reasons for holding his or her true beliefs. In *Meno*, Socrates compared people holding true beliefs (but without knowing good reasons for those beliefs) to people who owned valuable statues, but did not chain them down. He pointed out the folly of owning precious statues that are not secured; the statues would quickly be stolen. When secured, however, the statues would have great value. Likewise, according to Socrates, true belief comes and goes, but knowledge (true belief with good reasons) has great value because it is fastened down and will stand firm. Both knowledge and true belief can guide behavior effectively for the moment, but true belief without reasons, like the unsecured statue, could be gone tomorrow.

Confucius

Confucius (551-479 B.C.), like Socrates, left behind no writings, but his students recorded many of his ideas in the *Analects* (trans. 1979; hereafter the *Analects* will be cited simply by book and chapter number). The *Analects* are quite accessible even to the uninitiated and provide insight into an approach to teaching and learning that markedly contrasts with that envisioned by Socrates. Confucius valued effortful learning, behavioral reform, pragmatic learning, acquisition of essential knowledge, respectful learning, collectivist learning, and had an affinity for poetic summary. Confucius taught his disciples his vision of individual righteousness within five ethical relations. These relations sum up the universal obligations of duty between ruler and subject, father and son, husband and wife, elder brother and younger, and between friends. He believed that ethical behavior within these relations would produce harmony within society (Confucius, 1947). Confucius' ideas about education, ethics, and government are important to a large number of people in the world today, but his ideas are unfamiliar to many in the West.

Effortful Learning

For Confucius, learning was closely tied to hard work. He spoke of effort much more frequently than of ability (e.g., 18:1). He expected nothing less than a student's best effort (7:25, 14:7, 15:6), and he willingly taught anyone who wanted to learn regardless of their ability (7:7). He despised those who pursued quick results and who wanted to avoid extended effort (14:44), but he praised effort he saw in others, believing that practice and singleminded effort were instrumental to attaining success (15:6, 15:32, 17:2). One of his students said that doing one's best and comparing oneself to others was the thread that united all of Confucius' teaching (4:15).

Behavioral Reform

For Confucius, the primary goal of learning was focused on reforming behavior (4:15, 7:25, 17:23). Socrates discussed virtue, but the Socratic notion of virtue at times seems less pragmatic and more focused on apprehension of truth than on practical behavior (*The Apology*). If we accept *Phaedo*, which is from the middle of Plato's career (Scott-Kakures et al., 1993), as representative of Socrates, the height of Socratic virtue consists of a mystical apprehension of truth. Confucius' conception of virtue centered on reforming one's behavior in this world (4:15, 9:11). Whereas Socrates frequently probed others with questions to help them find truth, Confucius more frequently exhorted his students with short homilies about virtuous behavior.

The centrality of developing virtuous behavior in traditional Confucian education cannot be overstated. Confucius (4:15, 6:3, 7:25, 17:23) and his followers (e.g., *The Great Learning*, trans. 1893/1971) taught that virtue was a central goal of education because only virtuous behavior could ensure individual success and societal harmony. Virtuous behavior in the teacher likewise was considered a prerequisite for teaching because only virtuous teachers would have a positive influence on others. In the absence of virtue, people could only be influenced by coercion, which was considered undesirable (2:3).

Pragmatic Learning

Confucius had a pragmatic orientation to learning; the idea of learning merely for the sake of learning was foreign to him (Lee, 1996). In addition to the goal of behavioral reform discussed above, a second acceptable goal of learning was to obtain a government job and become better at conducting oneself in that job. Confucius exhorted his students that if they corrected themselves and avoided error they would be assured of procuring and adequately performing in a government career (2:18, 13:13, 15:32). Confucius believed that there were activities that went deeper into learning than merely storing up knowledge, but a parallelism in the text suggests that these activities related not to higher thinking skills, as many educators might assume, but to self-improvement including becoming more virtuous and more skilled (7:3). Confucius summed up his practical orientation when he said (despite being a firm believer in the value of memorizing poetry), "If a man who knows the three hundred Odes by heart fails when given administrative responsibilities and proves incapable of exercising his own initiative when sent to foreign states, then what use are the Odes to him, however many he may have learned?" (13:5).

Acquisition of Essential Knowledge

Confucius exhorted his students to absorb knowledge taught to them. Students were encouraged to learn the essentials and assured that if they learned the essentials, they would rarely miss the mark (4:23). They were not merely to parrot the words of authorities (13:23), but to truly understand and be reformed by the knowledge contained in those words.

Even Confucius claimed not to be creating ideas. He said, "I transmit, but I don't innovate; I am truthful in what I say and devoted to antiquity" (7:1). Thus, even this great scholar viewed his role as one of acquiring and transferring knowledge rather than expressing personal hypotheses. Excessive focus on generating ideas goes against the Confucian ideal of the modest, slow to speak individual focused on learning from respected others (1:14, 12:3, 12:20, 14:44,

15:31). Innovation was acceptable in certain contexts, but the tendency to innovate or criticize without extensive preparatory knowledge was a fault according to Confucius (7:28, 16:2).

Confucius asserted that he desired his students to sift his teachings and criticize his statements (11:4), but more frequently he seemed to value an acquisition-focused approach to learning. The priority he gave to acquisition of essentials expressed itself in his comparison of the value of thinking and studying. He said, "I once spent all day thinking without taking food and all night thinking without going to bed, but I found that I gained nothing from it. It would have been better for me to have spent the time in learning" (15:31). This acquisition of essentials was central to his conception of teaching.

Respectful Learning

Confucius expected learners to respect and obey authority figures (1:6, 3:19, 4:18; 14:43-44), and this contrasts with Socrates' habit of publicly humiliating authority figures. Within Confucius' five ethical relations, people were taught a duty to obey and respect those of higher status than themselves. Confucius said that, "To honor those higher than ourselves is the highest expression of the sense of justice" (1947, p. 332). Confucius believed that virtue usually could only be achieved through observing and learning from people who provided models of virtue (5:3), so students were encouraged to find someone better than themselves and imitate that person (4:17).

Collectivist Learning

The means of pursuing learning for Confucius was not focused on questioning, evaluating, and generating knowledge, as it was for Socrates, because truth was not found within the self; the individual was not the main arbiter of truth. Instead, truth and the associated good character traits were learned from the collective, and in particular learned from individuals whom the collective recognized as exemplars. These people in turn learned from the ancients whom the

collective recognized as even greater exemplars (4:17, 7:1). The epistemology underlying this approach presumes that truth is already known and available to all who submit to a worthy master, so one needs merely to engage in the effortful task of attending to recognized masters. The learning task was not individualistic and unique for each student, but instead was the same for all students; they all needed to engage in the effortful task of learning truth and character from the masters (5:3, 14:44). Confucius, unlike Socrates, did not encourage an educative task focused on the individual pursuit of truth.

Affinity for Poetic Summary

One final characteristic, which for Westerners might seem contrary to Confucius' focus on practical learning, was his appreciation for poetry. Confucius valued the memorization of traditional poems and frequently discussed interpretations of them (3:20; 8:3; 8:8, 9:27). He also used poetic devices in his own speech (e.g., 4:15; 5:4), and frequently spoke in short ambiguous statements (e.g., 14:25, 17:3) that have been interpreted with a variety of meanings (Berthrong, 1998). Confucius viewed poetic interpretation as an advanced activity for which few people were capable (3:8). He criticized his students for not conscientiously enough applying themselves to the study of poetry (17:9).

Socrates had a more ambivalent view of poetry. In *Ion*, he said poetry can be divinely inspired, but also argued that the bards who recite poetry lack knowledge and should not be trusted as guides for life. In *The Apology*, he argued that poets wrongly believe themselves to be wise, and that they “say many fine things, but lack understanding of them” (Plato, trans. 1937a, p. 10). Also, to the extent that *The Republic* (from the middle of Plato's career; Scott-Kakures et al., 1993) is indicative of Socratic beliefs, we have evidence that Socrates feared the effects of poetry. In *The Republic*, Socrates suggested that poetry should be banned from the city because poetry nourishes passions and makes the passions rule over people. In the words of Socrates, “If

you receive the honeyed muse in lyric or epic, be sure that pleasure and pain will be kings in your city, instead of law and whatever reasoned argument the community shall approve in each case to be best” (Plato, trans. 1956, p. 407).

The Confucian affinity for poetic summary along with effortful pragmatic acquisition of essentials and behavioral reform are the foundation of the Confucian approach to learning. The Socratic approach in contrast combines a tendency to question and carefully evaluate accepted knowledge, and a tendency to consider self-generated alternatives. These aspects make up the current “Socratic vs. Confucian approaches to learning” framework.

Deep and Surface Approaches to Learning

Most previous research programs comparing culturally Chinese and culturally Western learners, rather than using the Confucian vs. Socratic framework, have focused on surface vs. deep approaches to learning. The Confucian vs. Socratic distinction within the current framework is less value-laden than and more specifically designed for cross-cultural research than the surface vs. deep distinction. Nonetheless, some interesting evidence gathered within the surface vs. deep tradition suggests that Westerners may often misperceive the nature of Chinese learning.

Roots of the Deep and Surface Dimensions

The surface vs. deep distinction has roots in qualitative research conducted in the West. Marton and Saljo (1976), who generated the main dimensions for the framework, had students read written passages and asked them to describe what they did while reading the passages. From these descriptions, Marton and Saljo distinguished two broad types of responses that indicated either a surface or a deep approach to the task. In the former, students reported trying to memorize the phrases or words used by the author. In the latter, students reported trying to understand the main points or trying to infer the main meaning of the argument. Not surprisingly, deep oriented students tended to outperform surface oriented students on recall of the main

argument from the passage.

Self-Report Scale Assessing the Dimensions

Biggs (1987) developed a self-report measure, the Study Process Questionnaire (SPQ), independently assessing these two orientations plus a third called the achieving orientation. Each approach to learning is represented in the SPQ by particular motivations and strategies. The surface subscale assesses motivation directed toward utilitarian ends and strategies aimed at reproduction of bare essentials. The deep subscale assesses motivation aroused by interest in the subject matter and strategies aimed at understanding. The achieving subscale assesses motivation arising from a desire for high grades and strategies that support this goal such as punctuality and wide reading.

Some studies have explored the relations between the SPQ and other constructs. Grade point average (GPA), for example, has been found to be positively associated with a deep orientation and negatively associated with a surface orientation (e.g., Watkins, Reghi, & Astilla, 1991), as the work by Marton and Saljo (1976) suggests. Again, as might be predicted, university students exhibited lower surface orientation scores than did college students, and older students tended to score higher on the deep and lower on the surface orientation than did younger students (Biggs, 1987). The factor structure of the SPQ, which was originally developed in Australia, was confirmed in Hong Kong in an analysis of over 4,000 respondents (Biggs, 1993).

Culturally Chinese Students

Some reports have suggested that culturally Chinese students tend to take a shallow approach to learning. For example, over 30% of Australian instructors surveyed by Samuelowicz (1987) felt that Asian students adopted less desirable approaches to learning than Australian students. The statements from instructors suggested that Asian students wanted to rote learn and did not want to think. Other observers have characterized Asian learning as passive (see Barker,

Child, Gallois, Jones, & Callan, 1991). Pratt and Wong (1999) reported that Western instructors in Hong Kong sometimes disparaged Chinese approaches to learning as overly instrumental and accused culturally Chinese learners of being unwilling to think deeply. Biggs (1996b) suggested that negative evaluations of Asian approaches to learning are typical for Western instructors.

Other evidence, however, indicates that if we follow Marton and Saljo's (1976) definition of deep processing, culturally Chinese learners are deeper in their approach to learning than these surveys suggest. For example, East Asian students, both in East Asia and in America, often outperform American students (Barringer, Takeuchi, & Xeno, 1995; Hsia & Peng, 1998; Stevenson & Lee, 1996; Stevenson & Stigler, 1992; Sue and Okazaki, 1990). In addition to this achievement evidence, Kember and Gow (1991) argue that Westerners frequently misperceive Chinese study methods. Although some may assume that students engaged in memorization are not interested in deep understanding (Pratt & Wong, 1999), Kember and Gow argue that Chinese culture encourages students to use memorization not as an end in itself, but as a path to understanding. For example, the majority of Chinese educators in an interview study of conceptions of learning spontaneously described memorization and understanding as related. They saw memorization as a path to understanding and vice versa. One of the Chinese teachers said, "In the process of repetition, it is not a simple repetition. Because each time I repeat, I would have some new idea of understanding, that is to say I can understand better" (Marton, Dall'Alba, & Kun, 1996, p. 81). Culturally Chinese students, the findings suggest, may frequently engage in strategies that appear to be surface oriented, but instead are actually deep oriented according to the Marton and Saljo (1976) definition of deep processing.

Further evidence for depth in Chinese learning comes from studies with the SPQ. Biggs translated the SPQ into Cantonese and expected to find Chinese students high on the surface subscale and low on the deep subscale. He found the opposite (Biggs, 1987). Others (Kember &

Gow, 1991) also have detected SPQ patterns suggesting that culturally Chinese students take a deeper approach to learning than is commonly perceived. An exception to this trend was found for Hong Kong students in faculties of arts who scored higher on surface and lower on deep than did Australian Arts students (Biggs, 1992). Biggs suggested this finding may be owing to the fact that in Hong Kong the best students tend to be steered away from the Arts and Humanities.

Some problems, however, make the SPQ data difficult to interpret. For example, most of the studies compare groups using different translations of the SPQ thus raising comparability issues. Furthermore, Hong Kong universities are more selective than Australian universities, which makes comparison of the student populations somewhat problematic (Biggs, 1992). One study (Volet, Renshaw, & Tietzel, 1994) that compared students in the same context using the same form of the SPQ actually produced results opposite to those of Biggs (1987).

Another problem is that the SPQ data may actually underestimate the extent to which culturally Chinese students take a deep approach to learning as defined by Marton and Saljo (1976). Asian students' deep subscale scores may be reduced not by lack of a deep approach, but by Western cultural assumptions that have been injected into the SPQ Scale. The belief that education should be its own end and that education loses meaning if conducted for an external purpose is a Western notion promoted by John Dewey (1897/1968, 1916). This concept would have been foreign to Confucius and also may be foreign to those participating in modern, practical-oriented Chinese culture (Hofstede, 1984; Wink, Gao, Jones, & Chao, 1997). This notion however is represented in the deep items of the SPQ. Four of the items on the deep subscale ask whether the respondent finds pleasure in the act of studying or feels a need to know truth. The scale construction assumes that deep learning is intrinsically motivated. A more instrumental conception of learning, viewing learning as a means to an end, which we argue is part of the Confucian conception of learning, is represented in the surface items of the SPQ. These

conceptions are not part of Marton and Saljo's (1976) original conceptualization of deep vs. surface level processing. This characteristic of the SPQ items suggests that the SPQ may actually underestimate the extent to which culturally Chinese learners take a deep approach to learning. Because of these problems, the SPQ findings should be coded as a somewhat limited adjunct to the other evidence that culturally Chinese students are at least comparable to Western students in terms of deep learning as defined by Marton and Saljo.

The processing orientation paradigm of Marton and Saljo (1976) has produced important findings, but was not originally intended for cross-cultural research. In contrast, our Confucian-Socratic framework, which we turn to next, was constructed for cross-cultural research.

Socratic vs. Confucian Learning Today

The Confucian vs. Socratic framework has been developed to describe relative differences between Chinese influenced and Western influenced approaches to learning. In particular, in the modern context, Confucian oriented learning may be seen in effort focused conceptions of learning, pragmatic orientations to learning, acceptance of behavioral reform as an academic topic, and affinity for poetic summary. Socratic oriented learning may be evident in overt questioning, private questioning, consideration of personal hypotheses, and a desire for self-directed tasks.

Effort Focused Conception of Learning

The Confucian-Socratic framework suggests that Chinese students will view effort as more central to the learning process than will Westerners. This difference has been explored and supported in some contexts. In one study, Chinese students in Australia reported putting forth greater effort into academic pursuits than did Anglo-Australians or other Westerners (Rosenthal & Feldman, 1991; see also Sue & Zane, 1985). Also, Chinese grade school students in China tend to attribute academic success to effort (Hau & Salili, 1991), but Americans tend to attribute

academic success to less controllable factors such as possessing inherent ability or having a good teacher (Stevenson & Stigler, 1992; Stevenson, Chen, & Lee, 1993).

This focus on effort suggests that Chinese culture inculcates an implicit incremental theory, to use the terms of Carol Dweck and her colleagues (e.g., Dweck, Chiu, Hong, 1995; Levy & Dweck, 1998). According to Dweck's model, incremental theorists assume that one can change important aspects of the self such as one's ability to perform intellectual tasks. Because of this assumption that one's own ability level can be changed, incremental theorists conclude that achievement is determined more by effort and strategy than by inherent ability. This belief in the malleability of fundamental abilities coheres with Confucius' doctrine that humans are by nature similar (17:2) and that success is within reach of all who work to master certain fundamentals (4:23). In contrast, entity theorists, in Dweck's model, tend to see the self as unchangeable. They assume that fixed, stable, and global traits provide the best explanations for behavior. In the intellectual domain, entity theorists attribute performance largely to inherent ability rather than to effort and strategy.

An implicit entity theory can have some disadvantages when encountering the inevitable academic experience of disappointment with one's own performance. Entity theorists tend to believe that poor performance reflects unchangeably low ability (Levy & Dweck, 1998), a form of characterological self-blame (Janoff-Bulman, 1992). Characterological self-blame, which also predicts poor outcomes in other domains (Janoff-Bulman, 1992), in this context predicts increased anxiety, reduced task pleasure, reduced perseverance, and reduced performance (Levy & Dweck 1998). Incremental theorists, in contrast, tend to attribute disappointing performance to insufficient effort or a badly chosen strategy (Levy & Dweck, 1998), a form of behavioral self-blame (Janoff-Bulman, 1992). As both effort and strategy can be controlled, this attribution gives hope of good future performance to the incremental theorist. In keeping with this hopeful

attribution pattern, incremental theorists persevere longer and perform better after failure than do entity theorists (Levy & Dweck, 1998). These implicit theories appear to have causal power (not simply correlated third variables) as suggested by studies in which the theories were manipulated and then influenced the behavior of respondents (Chiu, Hong, & Dweck, 1997; Levy, Stroessner, & Dweck, 1999).

Chiu et al. (1997) found no difference between Hong Kong and American students on a self-report assessing implicit theories. The study, however, focused on morality rather than intellect, and also did not correct for the Chinese tendency toward acquiescence (or the Western tendency toward nay saying, depending on one's perspective) on self-report questionnaires (Hofstede, 1980). The measure of implicit theory in Chiu et al.'s study only directly measured entity orientation and had no reversed questions and no questions specifically assessing incremental theory. This measurement technique could overstate the entity orientation of acquiescent (more frequently Chinese than Western) responders. A more extensive measure of implicit theory, which could potentially overcome this problem, has been developed (Dweck, 1999), but to our knowledge has not been employed in cross-cultural research. Other evidence described above, however, suggests that entity theory is more widespread in the West than in the East. That is, Westerners tend to focus on traits when making attributions more than do Easterners, whether the attribution be related to self, others, or even to inanimate objects (see review by Choi, Nisbett, & Norenzayan, 1999). Druckman and Bjork (1994) described attribution from performance to ability or lack thereof as a widespread fallacy that ignores research suggesting that practice is the most critical factor in determining performance. They argue that this fallacy is a major barrier to effective training, and it is interesting to note that this fallacy may be especially widespread in the West.

Pragmatic Outcome vs. Truth as End Goal

The Confucian-Socratic framework predicts that Chinese learners will focus more on practical outcomes of education than will Western learners. Several researchers (e.g., Salili, 1996; Sue & Okazaki, 1990; Winter, 1996) have suggested that Chinese students are more likely than Western students to view education as a means to an end. This practical orientation toward education actually may be increased when ethnic Chinese immigrate to Western countries because education can provide a path to high status jobs when discrimination and other barriers block certain other routes (Sue & Okazaki, 1990). Historical precedent laid the groundwork for this practical view of education in China; even as early as 2,500 years ago, education was a way to a secure job in Chinese government (Lee, 1996). This type of practical orientation to education accords with the more general tendency toward practicality evidenced in other aspects of Chinese culture (Hofstede, 1984; Wink et al., 1997). A Chinese saying cited by Lee (1996, p. 37) provides a fitting summary of this practical orientation toward education: "Although studying anonymously for ten years, once you are successful, you will become well-known in the world." This practical orientation contrasts with the Western philosophical orientation derived from Dewey (1897/1968; 1916) that learning should be its own end, and that education loses meaning if focused on an extrinsic goal.

Behavioral Reform

Also, students adhering to a Chinese culture in a Western context may at times betray an assumption that behavioral reform deserves a more significant role in educational discourse and for that matter in all of life than Westerners may tend to accept. This proposal concurs with Triandis' (1996) statements that behavior in collectivist cultures tends to be guided by norms rather than by attitudes. In contrast, people in Western cultures tend to prefer for behavior to be guided by attitudes (Triandis, 1996), and tend to be uncomfortable with prolonged written or

spoken discourse regarding morality (Bellah, Madsen, Sullivan, Swidler, & Tipton, 1985; Li, 1996). Even Triandis' phrasing, avoiding the use of the term morality, may reflect Triandis' sensitivity to a Western academic audience uncomfortable with discussion of morals. An alternative yet similar statement is simply that collectivist cultures, Chinese culture included (Domino & Hannah, 1987), promote salience of moral rules and encourage moral exhortations. In contrast to Western discomfort with moral exhortations (Bellah et al., 1985; Li, 1996), Chinese culture reportedly encourages moral exhortations not only by teachers (Li, 1996), but also by political leaders, judges, and others in society (Coates, 1968).

Overtly Question versus Respect

The Socratic vs. Confucian framework suggests that culturally Western learners will be more likely than culturally Chinese learners to overtly question knowledge presented by an instructor. This Socratic ideal of being openly skeptical in response to an instructor may seem foreign to many Confucian oriented students. Respect for others in Chinese culture is more likely to preclude public criticism (Argyle, Henderson, Bond, Iizuka, & Contarello, 1986) and promote polite submission than would be the case in the West (Gallois, Barker, Jones, & Callan, 1992). In Australia, Chinese students who watched videotapes of a student interacting with an instructor perceived submissive behavior as more respectful than assertive behavior. Australian students and instructors did not make this differentiation, and instructors actually rated submissive, polite behavior as unlikely to help the student succeed (Gallois et al., 1992).

Overt questioning has the potential to disrupt social harmony, which Chinese culture values highly in many contexts. This concern with social harmony is evident in Chinese negotiation styles self-reported in Hong Kong and Taiwan (Kirkbride, Tang, & Westwood, 1991; Trubisky, Ting-Toomey, & Lin, 1991) and in Chinese conceptions of social intelligence as assessed in China (Willmann, Feldt, & Amelang, 1997).

In particular, overt questioning of instructors' authoritative knowledge can threaten social harmony by disrupting the power distance some students expect between themselves and their instructor. Hofstede's (1980, 1983) classic cross-cultural analysis suggests that Chinese culture encourages acceptance of power distance. Hofstede defined power distance as "the extent to which the less powerful person in a society accepts inequality in power and considers it as normal" (Hofstede, 1984, p. 390). Power distance seems related to the vertical dimension discussed by Triandis and Gelfand (1998). Additional research supports Chinese acceptance of power distance. On Altmeyer's (1981) Right-Wing Authoritarianism Scale, Chinese-Americans score higher than other Americans on the full scale and on the law and order and social inequality subscales (Wink et al., 1997). Chinese-Americans also report a greater tendency toward hierarchical relations within their families than do Westerners (Feldman & Rosenthal, 1990, 1991; Ho, 1981; Mullins, Quintrell, & Hancock, 1995; Wink et al., 1997). In business contexts, high power distance cultures discourage disagreement with supervisors (Hofstede, 1980), a parallel to student relations with instructors. Structures of educational institutions provide cues indicating that instructors wield more power than students. Students who are sensitized to perceive and accept power distance, as culturally Chinese students apparently are, will be more likely to withhold questions that threaten that power distance and instead display behaviors indicative of submissive respect for instructors.

In contrast to the Chinese value of respectful behaviors, culturally Western students may at times have negative attitudes about respectful behaviors directed toward powerful others. Showing respect for superiors sometimes can be interpreted negatively as an indicator of "sliminess" and may elicit a "licking upward-kicking downward" evaluation from Western observers (Vonk, 1998). The negative connotation of showing respect to powerful others in the West is suggested by slang terms including "brown-nosing" and "sucking-up." In contrast, in

China, using respect to influence others is rated as prototypic of socially intelligent behavior and is reflective of positive rather than negative personal traits (Willmann et al., 1997).

Anecdotal evidence (Gallois et al., 1992; Kehoe, 1984; Putti, 1989) suggests that culturally Chinese individuals may speak out less frequently in tutorials and discussion groups than culturally Western students. Student surveys support this anecdotal evidence. In an Australian study, serious difficulty with tutorial participation was four times as likely to be self-reported among a predominantly Asian group of international students as among local students (Mullins et al., 1995; see also Barker et al., 1991). A questionnaire study by Duncan and Paulhus (1998) found that 96% of Asian-Canadians reported shyness in class, compared to only 38% of European-Canadians. In a follow-up observational study, Duncan and Paulhus (1999) found that Asian-Canadian students were much less likely to speak out during class in a variety of faculties than were European-Canadian students. The evidence, however, is not entirely consistent. Renshaw and Volet (1995) reported that in tutorials they observed in an Australian university, a predominantly Chinese group of students from Singapore produced the same mean level of participation as other students but produced lower variance as a group. Their observations took place only in Economics tutorials, so generalizability is an issue. Hesitation to speak out is adaptive for many contexts, but can create difficulties for students when vocal participation is expected as it is in some university classes, especially upper level and graduate classes.

Privately Question vs. Accept or Postpone Questioning

The Socratic vs. Confucian framework further suggests that this Western tendency to question should extend beyond public behavior and characterize private thinking as well. Western students are exposed to many exemplars in the popular and alternative media who model and promote this kind of questioning. Noam Chomsky, for example, one of the more influential intellectual dissidents in North America, has called for common people to question authorities

(Achbar, Wintonick, & Symansky, 1992). Chomsky asserted that the powerful voices in our cultures create illusions and that we must be vigilant to question ideas propagated by the powerful voices thereby precluding authorities from manufacturing consent. He said that it is the job of intellectuals to “speak the truth and expose lies” (Chomsky, 1968, p. 256), and he juxtaposed this type of questioning behavior to what he called “irrational attitudes of submission to authority” (Achbar et al., 1992).

Students adhering to a Chinese culture who may be less practiced at expressing skepticism publicly may construct an academic role in which skepticism has little value. This suggestion is supported by qualitative findings of Pratt and Wong (1999) that Chinese students and instructors in Hong Kong tended to treat texts and instructors as highly authoritative sources of knowledge and tended to assume that the first steps of learning consist of developing an ability to reproduce knowledge presented by these sources. Some Western instructors in that context tended instead to assume that the basics are self-evident or transitory and as a result mastery of the basics is less important than developing an ability to think critically and to solve unfamiliar problems. The nature of the Hong Kong secondary education system, with its focus on preparation for multiple-choice exams, further highlights that Chinese culture encourages construction of an academic role in which questioning has lower salience than in the West.

Pratt and Wong (1999) have suggested (see also Marton & Booth, 1997; Watkins & Biggs, 1996; Wong, 1995) that culturally Chinese learners tend to perceive learning as a sequential four stage process: 1) memorizing, 2) understanding, 3) applying, and 4) questioning or modifying. The location of criticism at the end of the learning process contrasts with Western conceptions that assume that critical evaluation takes place throughout the learning process. As of yet, however, researchers have not extensively explored the extent to which culturally Chinese learners’ hesitation to question extends into the realm of private thoughts, though we expect this

extension to exist.

Consider/Express Personal Hypotheses vs. Acquire Essential Knowledge

The Socratic vs. Confucian framework also predicts that culturally Western students will more frequently consider and express personal hypotheses than will culturally Chinese learners. Chinese respondents have reported a preference for absorptive intellectual tasks (Chen, Braithwaite, & Huang, 1982) and a hesitation to disclose personal opinions and feelings to out-group members (Gudykunst et al., 1992; see also Cai, 1999; Pratt & Wong, 1999). These preferences conflict with an increasing Western educational expectation that students should construct and express personal hypotheses (e.g., Bruffee, 1993).

Acquisition should not be confused with passive learning. The belief that acquisition is somehow passive and possibly even inferior can be traced back at least to Descartes (see Gilbert, 1991), yet both Socratic and Confucian learners can be construed as active. The Confucian learner must actively work to acquire and learn to apply concepts taught by the instructor; the Socratic learner must actively work to find knowledge already residing within the self.

Desire for Self-Directed vs. Structured Tasks

The framework also suggests that culturally Western students will tend to feel a greater need for self-direction in academic tasks. Socrates' doctrine that knowledge already resides within students suggests that able learners like himself could progress even without a guide, and in fact would progress most ably when freed from pressure to accept beliefs handed down by societal authorities. Confucius assumed that students would need a competent teacher to guide them (5:3) and believed students would better spend their time absorbing structured ideas than thinking independently (15:31).

Educators in the West have long praised freedom of choice for students believing that it will lead to higher intrinsic motivation and better learning (e.g., Dewey, 1938; Knowles, 1990;

Lefrancois, 1994). Research in the West has supported the notion that free choice leads to higher intrinsic motivation in the form of greater perseverance following free choice and, conversely, that a sense of feeling controlled reduces intrinsic motivation (Deci & Ryan, 1985). Recent research however suggests that these findings do not generalize across cultures. Iyengar and Lepper (1999) found that as expected personal choice enhanced motivation for Anglo-American children, but for Asian-American children, their peak motivation was observed not when they freely chose their activities, but when their activities were chosen for them by trusted peers or trusted authority figures. Analogously, in modern business contexts, Hofstede (1980) found that workers in collectivist cultures, of which Chinese culture is one, tended to want their work structured by their work leader more than did people from individualist cultures. Collectivists tended to lose respect for managers who consulted with workers. Western managers frequently see employee empowerment, which includes allowing workers to structure their work, as a means to increase motivation. In a collectivist, high power distance society, however, motivation may actually be reduced by this style of leadership (Hui & Luk, 1997; Whyte, 1983). The impact of these collectivist expectations on leadership is likely to generalize to the educational context.

According to Triandis, people in collectivist cultures are more likely to desire norms to guide their behavior than are people in individualist cultures (see also Heine, Lehman, Okugawa, & Campbell, 1992). The collectivism of Chinese culture suggests that Chinese learners will be more likely than Western learners to expect instructors to provide explicit norms for academic tasks. Support for this comes from a related observation (Pratt & Wong, 1999) in Hong Kong that Chinese faculty and students expected instructors to provide more structure than did Western instructors teaching at the same location.

Many Western instructors seem to possess a culturally influenced tendency to disparage requests for greater structure. Instructors in the West sometimes use the pejorative phrase

“wanting to be spoon-fed” to describe students who ask for extensive structure from instructors.

Yet, some leadership studies suggests that leaders who provide extensive structure while simultaneously expressing warmth often are among the most effective in both the East (Hui & Luk, 1997) and the West (Stogdill, 1974). These studies may generalize to the education context in at least some settings.

Affinity for Poetic Summary (Analogy, Metaphor, Imagery, and Contradiction)

The framework also suggests that in particular contexts a Confucian affinity for poetic summary may be evident in the academic work of students adhering to a Chinese culture. This tendency has not been previously reported in research in Western educational contexts, but the hypothesis concurs with the ongoing practice of poetry memorization in Hong Kong high schools, and with the qualitative analysis by Li (1996) in his fascinating work comparing high school essays from China with high school essays from the United States. In particular, according to some reports, essays by culturally Chinese students more frequently contain elements of metaphor, analogy, and visual imagery than essays by native English speakers (Li, 1996; see also Matalene, 1985) even under certain circumstances when the essays are written in English (Fagan & Cheong, 1987). This affinity for poetic summary may be latent in some culturally Chinese learners and may be expressed only in particular contexts. The poetic expressions could take the form of analogies, metaphors, or visual images (Fagan & Cheong, 1987; Li, 1996; Matalene, 1985). The work of Peng and Nisbett (1999) on naïve dialecticism suggests that poetic devices could also include exploration of contradictions, although this could possibly be more closely linked to Taoist rather than Confucian traditions. According to this work, the Chinese worldview tends to encourage learning from apparent contradiction. This openness to contradiction is evident in the Te-Tao Ching (e.g., “Bent over, you’ll be preserved whole; When twisted, you’ll be upright; When hollowed out, you’ll be full”; Lao-Tzu, trans. 1989, Tao: 22), and Peng and

Nisbett report that modern Chinese students evaluate proverbs containing contradictions more positively than do Western students. Yet the use of contradiction or other poetic devices has not been extensively explored as a latent dimension in the Chinese approach to academic learning in the West. Possibly, language difficulties of the students most strongly adhering to a Chinese culture restrain expression of an affinity for poetic devices in the West except under special circumstances.

A Dimension Not Accounted for by the Framework

One particular characteristic of a Chinese approach to learning is not included in the Confucian-Socratic framework: collaborative learning. Tang (1996) proposed that collaborative learning is central to Chinese culture. Her interviews revealed that the majority of postsecondary students in a Hong Kong sample engaged in collaboration when preparing for a written assignment. Students in Tang's sample who collaborated with others described their thinking in terms more akin to deeply oriented learning than did students who worked individually. This finding fits with Bruner's (1996) suggestion that self-guided discovery in groups cultivates deeper mental processing, but in Tang's study causal conclusions are precluded due to the self-selection of groups. The extent to which collaboration differentiates culturally Chinese learners from culturally Western learners deserves further exploration.

CHAPTER 2: INITIAL SELF-REPORT ASSESSMENT OF THE FRAMEWORK

This first study tested, with a self-report questionnaire, some of the hypotheses generated by the Confucian vs. Socratic framework of learning. In particular, the study assessed whether Western-influenced students report an approach to learning characterized more by questioning ideas, evaluating ideas, and generating ideas and conversely characterized less by desiring structure than do Chinese-influenced students. Also, students were asked about orientations that they perceived as facilitating achievement of high grades. We expected Western-influenced

students would perceive Socratic approaches as being more important for achieving high grades at school than would Chinese-influenced students.

Method

Participants

Students in first and second year psychology classes at the University of British Columbia were recruited for the study (N=379). The mean age of the participants was 19.7 and the sample included 120 males and 259 females. The students were distributed among the following academic faculties: Arts (n=187), Science (n=116), Commerce (n=42), and other (n=34).

The Confucian-Socratic model has been expressed in dichotomous language comparing Chinese and Western culture. Nonetheless, we assume that continuous dimensions underlie most if not all cultural differences (Tweed et al., 1999). In keeping with this assumption, we break the students into three rather than two groups and examine mainly linear rather than dichotomous effects. In particular, we assume that many Canadian Born Chinese Canadian students (n=53) will experience a mix of Chinese and Western influences which will produce a group mean on approach to learning that is more Confucian than that of European Canadian students (n=145), but more Socratic than that of Asian born Chinese Canadian students (n=98). Respondents were classified as European Canadian if they reported European or Canadian ethnicity, were born in Europe or North America, and had two parents born either in Europe or North America. They were classified as Canadian-born Chinese-Canadian if they reported Chinese ethnicity and were born in Canada. They were classified as Asian-born Chinese-Canadian if they reported Chinese ethnicity and were born in South East or East Asia. No statistically significant differences emerged between the groups in terms of age or gender.

Procedure

The questionnaire packet was distributed in class. Students completed the questionnaire and returned the package to the experimenter. Students who completed the questionnaire received credit toward their grade in their psychology class. All students were debriefed following participation.

Measures

Both previously validated and newly created scales were included in the questionnaire. Scales were created in cases for which adequate measures of the constructs as expressed in an academic context were unavailable (see Appendix A). In order to assess the validity of each of the new scales, validated scales with predictable directions of relation to the new scales were included. The new scales were retained for analyses only when they produced statistically significant associations with previously validated scales. As a further check on the newly created scales, factor analyses were conducted on the total pool of items for such scales.

Five scales were included to assess aspects of the Socratic approach to learning: a subset of items from the California Critical Thinking Disposition Inventory (CCTDI; Facione & Facione, 1992), public and private questioning scales, a modified Judicial Thinking Style Scale (Sternberg & Wagner, 1991), and a Generating Ideas Scale. Two scales were included to assess the Confucian approach to learning: a modified form of the Executive Thinking Style Scale (Sternberg & Wagner, 1991) and a modified Naïve Realism Scale (Wilkinson & Migotsky, 1994). The Surface, Deep, and Achieving subscales of the Study Process Questionnaire (SPQ; Biggs, 1993) also were included because although the SPQ has been used more than any other instrument in previous studies of Chinese approaches to learning, the results have not been highly consistent. Most of the evidence (e.g., Biggs, 1992; Kember & Gow, 1991) suggests that

Chinese students are more deep and less shallow than Western students, but Volet et al. (1994) found evidence to the contrary.

California Critical Thinking Disposition Inventory (CCTDI). The CCTDI is a 75-item self-report assessing one's disposition toward critical thinking. This scale assesses disposition not ability. The CCTDI items were derived from a definition of critical thinking agreed upon by a national cross-disciplinary panel under the sponsorship of the American Philosophical Society (Facione, Gaincarlo, Facione, & Gainen, 1995). According to this consensus statement, critical thinking is a purposeful cognitive process resulting in a judgment about a proposition or action. The disposition toward this operationalization of critical thinking, with its emphasis on judgments of propositions, overlaps with both the questioning and rating/evaluating subcomponents of the Socratic approach to learning. This scale is less specific in focus than are the scales assessing questioning and rating in this study, but more evidence of validity is available for the CCTDI than for the questioning and rating scales (Facione, Facione, & Giancarlo, in press). The 75-item scale has an alpha of .90. For this project only a subset of 17 items was used to represent the construct.

Public and Private Questioning. Tendency to question validity of class content was assessed with 8 items generated for this study (see Appendix A). Four of the items assessed tendency to privately question the validity of class content and four assessed tendency to publicly question class content. Evidence for scale validity was provided by expected negative associations with Altmeyer's (1981) Right Wing Authoritarianism Scale (RWA; $r = -.26$, $p < .001$; $r = -.26$, $p < .001$), 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 the results section.

Rating (Judicial Thinking Style Scale; JTS). Tendency to rate and compare theories was assessed with seven items from Sternberg's (1997) Judicial Thinking Style Scale (JTS). An eighth

item on the original scale asked respondents whether they liked to criticize other people's ways of doing things. This item was uncorrelated with the scale total (Sternberg & Wagner, 1991) and seems theoretically closer to disagreeableness than to the judicial construct, so it was dropped from the scale for the present study. Alpha for the original eight item scale was .72 (Sternberg & Wagner, 1991), and alpha for the seven item scale in the current sample was .78. The full scale was negatively correlated with the Myers-Briggs Perceptual Judgment Scale (Sternberg & Wagner, 1991). Evidence of validity in the current sample was provided by a positive association with the CCTDI items ($r=.34$, $p<.001$), and by separation from other scales in a factor analysis described in the results section.

Considering Self-Generated Ideas (Generating). Tendency to consider self-generated ideas was assessed with five items created for this study (see Appendix A). Evidence for validity in this sample was provided by an expected positive association with the eight item Mini-Marker for Openness Scale (Saucier, 1994; $\alpha=.81$; $r=.29$, $p<.001$; McCrae, 1987) consisting of eight adjectives drawn from Goldberg's markers for openness and by a factor analysis of the Confucian and Socratic items described in the results section. The complete Mini-Marker inventory consists of 40 adjectives drawn from Goldberg's (1992) set of 100 adjective markers of the Big Five dimensions of personality.

Desiring Structured Tasks (modified Executive Thinking Style Scale; ETS) and Desiring Structured Knowledge (Naïve Realism Scale). Two scales assessing desire for academic structure were included in the analysis. The first scale comprised items adapted from Sternberg's (1997) 8-item Executive Thinking Style (ETS) Scale. The items were modified for the academic context. This scale assesses the extent to which individuals prefer structured and rule-guided tasks in an academic context. The ETS Scale is positively correlated with the sequential styles on the Gregorc Style Delineator (Gregorc, 1982; Sternberg & Wagner, 1991). Sternberg suggested that

non-North American societies that tend to emphasize conformity will be higher on this ETS construct.

The second desire for structure scale places more emphasis on desire for structured knowledge. The scale is comprised of the three items of the Naïve Realism epistemological style factor reported by Wilkinson and Migotsky (1994). Individuals scoring high on these items prefer to be told by their teacher what is right and wrong rather than having to make that decision themselves. Evidence in this sample for validity of the desire for structured tasks and knowledge 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) and by separation of these scales from other scales in a factor analysis described in the results section.

Study Process Questionnaire (SPQ). The 42-item SPQ (Biggs, 1993) was used to assess approaches to learning that Biggs labeled deep, surface, and achieving. The surface subscale assesses motivation directed toward utilitarian ends and strategies aimed at reproduction of essentials. The deep subscale assesses motivation aroused by interest in the subject matter and strategies aimed at understanding. The achieving subscale assesses motivation arising from desire for outstanding grades and strategies including punctuality and careful note taking that support this goal.

Analyses

Ipsatization. Previous research (Hofstede, 1980) suggests that European and North American respondents tend to have a nay-saying bias relative to Chinese respondents (or Chinese have an acquiescence bias, depending on one's perspective), so a correction in cross-cultural research is appropriate to control for this bias (Hofstede, 1980; Smith & Schwartz, 1997). A more conservative transformation ipsatizes the data, thereby equating the overall questionnaire

mean for each individual. A more radical transformation equates item variance within persons as well (see Cattell, 1996 and Cunningham, 1985 for further discussion of these transformations).

The more conservative transformation, ipsatization, was selected for this analysis in part to keep the data as intact as possible and in part because the groups differed in mean, but not in variance on the approach to learning items. This acquiescence could possibly be interpreted as an expression of a Confucian orientation toward interpersonal harmony.

Group differences. The substantive group comparisons were conducted using a MANCOVA comparing the three cultural groups on the scales of interest. Follow-up univariate tests were conducted for each dependent variable. The follow-up univariate tests assessed the linear hypothesis that Chinese-Canadian students born in Canada would tend to be more Confucian and less Socratic than European-Canadians, and that Chinese-Canadian students born in Asia would in turn be yet more Confucian and yet less Socratic in approach to learning.

For the group comparisons, a number of possible covariates—gender, university major, questionnaire order, age, and year in program—were tested in a MANOVA for relations with the dependent variables. A liberal p value of .20 was used as a cut-off for determining whether the variables would receive further consideration as covariates. The variables that met this cut-off were further assessed in a multivariate general linear model to test whether they met the homogeneity of slope assumption of MANCOVA. ANOVAs also were conducted to determine whether the groups differed in levels of the potential covariates prior to conducting the MANCOVAs.

Results

Scale Validity Check

Oblimin rotated principal components analyses were conducted with items from six scales assessing the Confucian-Socratic framework. The analysis was conducted to see whether the

theorized factors would emerge. The pool of items included the private questioning, public questioning, rating (JTS), generating, desire for structured academic roles (modified ETS), and desire for structured knowledge (Naïve Realism) items. The CCTDI items were not included in the factor analysis because the CCTDI items overlap theoretically with several of the factors, so would detract from a clean factor analysis. In the six factor rotation, all theorized factors emerged as distinct. Twenty eight of the 31 items produced primary loadings of at least .40 on their theorized factor. One item from the Desire for Structured Academic Tasks Scale was dropped because it failed to load on any factor.

Validity of the scales was further assessed by examining correlations of the scales with more widely used scales, in particular with the CCTDI, the Personal Need for Structure Scale (PNS; Neuberg et al., 1997; Neuberg & Newsom, 1993), and a measure of the Big 5. As expected, the four Socratic scales (tendency to question privately and publicly, judicial thinking, and tendency to generate theories) were positively associated with the CCTDI items ($r=.21$, $p<.001$; $r=.32$, $p<.001$; $r=.34$, $p<.001$; $r=.27$, $p<.001$). Also as expected, the PNS was positively associated with desire for structured academic tasks and desire for structured academic knowledge ($r=.40$, $p<.001$; $r=.33$, $p<.001$). Tendency to publicly question instructors was expected to be negatively associated with agreeableness, but this relation was not statistically significant; instead tendency to publicly question was found to be positively associated with extroversion ($r=.29$, $p<.001$), which in retrospect is a reasonable expectation for this scale. In line with expectations, the tendency to generate ideas and theories was associated with openness ($r=.21$, $p<.001$) as suggested by previous positive associations between divergent thinking and openness (McCrae, 1987).

Coherence and Dimensionality of the Framework

In order to assess the coherence of the Socratic and Confucian constructs as measured in this study, and to test the dimensionality of the framework as measured in this study, an unweighted least squares factor analysis was conducted with seven scales related directly to the Confucian-Socratic framework. The scales were Private Questioning, Public Questioning, JTS, Generating Ideas, CCTDI, Desire for Structured Knowledge, and Desire For Structured Tasks. A scree plot suggested retaining only a single factor explaining 43.5% of the variance (eigenvalue=3.0). The next factor explained 14.7% of the variance (eigenvalue=1.2). All scales produced loadings of at least .45 on the first factor. An oblimin rotated two factor extraction was conducted to test whether a meaningful solution would be produced, but the results were not easily interpretable. These results suggest that the scales are measuring a single global construct, but one which the item level factor analysis described in the previous section suggests can be broken down into at least five subcomponents: private questioning, public questioning, judging, generating, desire for structured tasks reversed, and desire for structured knowledge reversed.

Group Comparisons: Approach to Learning

Variables considered for use as covariates in the group comparisons included age, faculty of science membership, gender, year in program, and questionnaire order (because the items used for this study were part of a larger counterbalanced questionnaire). In a multivariate test for relations between these covariates and the 10 dependent variables, only age and gender produced p values below .20, and were considered further as covariates. Of these two, only age met the homogeneity of slope assumption of MANCOVA and was included as a covariate in the hypothesis tests. The groups did not differ significantly in composition according to gender ($F(2, 292) < .01$, $p = .997$), so exclusion of this potential covariate should not compromise the results.

Group differences in self-reported approaches to learning are displayed in Table 1. The overall MANOVA was significant when all 10 scales of primary interest were included in a comparison of the three cultural groups controlling for age ($F(20, 568)=4.74, p<.001, \eta^2=.143$). Univariate follow-up tests for a linear effect produced significant group differences for six of the seven tests of the Confucian-Socratic framework. The effect was significant for private questioning ($F(1, 293)=20.64, p<.001, \eta^2=.066$), public questioning ($F(1, 293)=19.92, p<.001, \eta^2=.064$), rating ideas ($F(1, 293)=14.76, p<.001, \eta^2=.048$), generating ideas ($F(1, 293)=13.75, p<.001, \eta^2=.045$), the subset of items from the California Critical Thinking Disposition Inventory ($F(1, 293)=67.54, p<.001, \eta^2=.187$), and desire for structured knowledge ($F(1, 293)=21.10, p<.001, \eta^2=.067$). The groups did not significantly differ in self-reported desire for structured tasks. For each of the significant effects, the mean differences were in the expected direction. The findings suggest that European-Canadian students are more likely than Canadian-born Chinese-Canadian students to report a Socratic approach to learning, who in turn are more likely than Asian-born Chinese-Canadian students to report a Socratic approach to learning.

The groups also differed in terms of the surface approach to learning ($F(1, 293)=6.73, p=.010, \eta^2=.022$) and the deep approach to learning ($F(1, 293)=15.12, p<.001, \eta^2=.049$) as assessed by the SPQ. The European Canadian students reported more of a deep approach to learning than either of the Chinese-influenced groups and less of a surface approach to learning. These results differ from the results reported by Biggs (1992) who compared Chinese students in Hong Kong using a Cantonese form of the SPQ to Australian students using an English form of the SPQ. The results are consistent, however, with those reported by Volet et al. (1994) who, like us, conducted their research solely with English forms of the SPQ and compared students who were studying in the same university context.

Group Comparisons: Perceptions of the Learning Environment

Next we examined the Confucian vs. Socratic framework in terms of student perceptions of the learning environment. This contrasts with other parts of the questionnaire that focused on student self-reports of their own beliefs and behaviors regarding learning and approaches to learning. We expected evidence that students project their assumptions regarding learning on to the learning environment and in particular on to instructor demands. In particular, students were asked about orientations that they perceived as facilitating achievement of high grades, and we expected the European Canadian students to perceive Socratic approaches as being more important for achieving high grades at school than would the other students.

Students rated the importance of particular learning orientations including tendency to generate many ideas, tendency to question authority, tendency to memorize, and tendency to follow procedures. Some of the items represented a more Confucian orientation and others a more Socratic orientation. For a complete list of items, see Appendix A. For each of these orientations, students rated the importance of the orientation for attaining high grades at university.

Variables considered for use as covariates in the group comparisons included age, faculty of science membership, gender, year in program, and questionnaire order. In a multivariate test for relations between these covariates and the seven dependent variables, gender, program year, and faculty of science membership produced p values below .20, so were considered further as covariates. Of these three, only gender and program year met the homogeneity of slope assumption of MANCOVA and was included as a covariate in the hypothesis tests. The groups did not differ significantly in composition according to faculty of science membership ($F(2, 292) = .871, p = .420$), so exclusion of this potential covariate should not compromise the results.

Group differences in perceptions of requirements for high grades are displayed in Table 2. The overall MANOVA was significant when all 7 items were included in a comparison of the three cultural groups controlling for gender ($F(14, 562)=2.66, p=.001, \eta^2=.062$). Univariate follow-up tests for a linear effect produced significant group differences for five of the seven tests of the Confucian-Socratic model and a marginally significant difference for a sixth, but all of the effects were opposite to the expected direction. The effect was significant for questioning ($F(1, 287)=25.14, p<.001, \eta^2=.081$), evaluating ($F(1, 287)=4.57, p=.033, \eta^2=.016$), generating ideas ($F(1, 287)=4.55, p=.034, \eta^2=.016$), following rules ($F(1, 287)=10.48, p=.001, \eta^2=.035$), and being self-disciplined ($F(1, 287)=7.84, p=.005, \eta^2=.027$), and marginally significant for memorizing ($F(1, 287)=3.76, p=.054, \eta^2=.013$). The groups did not significantly differ on importance of generating theories ($F(1, 287)=1.38, p=.242, \eta^2=.005$). Contrary to expectations, the European Canadian students were less likely than Chinese Canadian students to report that a Socratic approach is important to attaining high grades at university.

Further exploration of this importance effect was conducted with a composite variable constructed by subtracting the Socratic importance variables from the sum of the Confucian importance variables. This further exploration revealed an interesting interaction ($F(1, 301)=6.90, p=.009, \eta^2=.022$) between cultural group and grades such that the relation between cultural group and ratings of importance was stronger for students with below average grades ($r=.34, p<.001$) than for students with above average grades ($r=.14, p=.098$). This interaction suggests that students with below average grades are more likely than other students to rate an approach to learning unlike their own as important to achieving high grades.

Discussion

The data tended to support value of the Socratic versus Confucian framework for describing cultural differences in self-reported approach to learning. European Canadian students

were more likely than the other students to report that they questioned their instructors and text books both publicly and privately. They were also more likely to report that they evaluated ideas presented in class and that they considered personally generated alternatives to ideas presented in class. In contrast, Chinese influenced students were more likely than Western students to desire structured knowledge from instructors. These findings support the notion that the academic task for students is, in part, a cultural construction. The study was based solely on self-report, so any conclusions about cultural differences in learning behavior within a Western context remain somewhat speculative. Nonetheless, beliefs about one's own behavior and about the nature of the world are important; in fact, some would argue that beliefs should be the central topic for cultural psychologists (Shweder, 1993).

The cross-cultural differences in self-reported perceptions of requirements for high grades were opposite to those expected suggesting that the dimensions' impact was wrongly predicted, but that the dimensions are nonetheless important. We had expected students to project their assumptions about learning onto their learning environment. As such, we expected that European Canadian students would rate Socratic behaviors as more important for attaining high grades than would Chinese influenced students. In fact, Chinese influenced students were more likely than Western students to report that Socratic behaviors lead to high grades.

This finding may be best explained by a contrast effect (Peng, Nisbett, & Wong, 1997) in which students, especially students with lower than average grades, seek to explain their failure to perform better. For students with the most Socratic approach to learning, the Confucian demands of the learning environment become salient because these demands clash with their own conceptions of learning. Students with a more Confucian orientation, however, may more frequently find the Socratic demands of university life to be challenging, so these Socratic aspects are made more salient for them than for other students.

The differences between the groups are relative. For both groups, however, Confucian behaviors tended to be rated as more important than Socratic behaviors for attaining high grades. Students from both groups agreed that ability and tendency to memorize and show self-discipline were more important for attaining high grades than were questioning ideas, evaluating ideas, and generating ideas. These student perceptions clash with claims made by some instructors that their goal is to promote critical thinking, but cohere with reports that most university instructors, even instructors who claim to be teaching critical thinking, evaluate students in ways that discourage Socratic orientations (Entwistle, 1997).

According to Cohen, an eta squared of .01 represents a small effect, of .06 represents a medium effect, and .14 represents a large effect (as cited in Howell, 1992). With the exception of the CCTDI, none of the effect sizes in this study were large. The moderate to small effect sizes suggest either poor measurement or truly large within-culture relative to between-culture differences on the dimensions. The within group variance may be even greater at less selective postsecondary educational institutes. The possibility that much variance in these orientations exists within cultures suggests both a caution and a direction for future research. The caution is that though cross-cultural differences exist, one will not be able to easily classify students' approach to learning based solely on cultural background. European Canadian students tend to report a more Socratic approach to learning than Chinese Canadian students, but many exceptions to this pattern will exist.

A direction for future research is also suggested by the possibility of large within-culture relative to between-culture variance. The framework may have relevance for unicultural as well as cross-cultural work. In our informal discussions with students about these dimensions, several said that the discussion helped them understand why they have struggled with certain academic tasks in the past and helped them see how they could do better in the future. Students unable to

display either type of orientation may struggle in some educational contexts. Possibly, even in unicultural contexts, educating students about the two orientations and their respective values could help students develop more flexible and successful approaches to learning.

CHAPTER 3: FOLLOW-UP SELF-REPORT ASSESSMENT OF THE FRAMEWORK

Because several dimensions of the Confucian-Socratic framework were not tested in the previous study, a second questionnaire study was conducted. This study specifically addressed predictions that Western influence among students would be associated with a tendency to report less of an incremental (effort-focused) implicit theory of intelligence, a less pragmatic approach to education, and less collaboration in learning, but more of a tendency to report an underlying epistemology relying on internal sources of truth rather than external guides to truth. We also expected that culturally more Western students would feel more anxiety regarding issues of truth because of their reduced willingness to trust external guides, and so would report higher concern about epistemological issues.

Method

Participants

Students in first and second year psychology classes at the University of British Columbia were recruited for the study ($N=244$). The students were distributed among the following academic faculties: Arts ($n=123$), Science ($n=83$), Commerce ($n=25$), and other ($n=13$). The mean age of the participants was 20.1 and the sample included 171 women and 73 men. The groups of primary interest were 101 European Canadians, 51 Canadian-born Chinese Canadians, and 92 Asian-born Chinese Canadians.

Measures

Entity vs. Incremental Scale. An entity vs. incremental implicit theory of intelligence measure recently developed by Dweck (1999) was administered. We hypothesized that Chinese-

influenced students would score higher on incremental theory than would Western-influenced students. The previously published comparison of these cultural groups (Chiu et al., 1997) used only entity items to indicate respondents' position on the continuum, so any Chinese acquiescence bias (or Western nay saying bias; Hofstede, 1980) would increase the Chinese group score toward entity theory and possibly mask true cross-cultural differences. The more recent form of the questionnaire includes items marking both ends of the continuum (entity and incremental). The incremental item total score is subtracted from the entity item total score to produce a single score less likely to be affected by an acquiescence bias. Also, the Chiu et al. (1997) study compared students in Hong Kong to students in the U.S., so a reference effect may have obscured the results (Peng et al., 1997); the Chinese students may have reported a description of themselves that compared themselves to other Chinese students and the U.S. students may have compared themselves to other U.S. students. In the current study, all groups of students were studying at the same university thereby reducing the likelihood of a reference effect masking true differences between the cultural groups.

Collaboration self-report. Students were asked to estimate how many times in the last year they met with a group of at least three students to study for an exam, to complete homework assignments, or to prepare a term paper. Each of these three questions was asked independently.

Epistemological self-reports. Students were asked a series of exploratory questions tapping self-reported epistemology. The questions were designed to assess whether the students reported reliance on their own internal reasoning and intuition to find truth or instead relied on sources outside the self including authority figures, tradition, and modern reference works.

First the students were asked an open ended question: "If you were to take three months of your life and devote yourself to finding out truth (true things), what would you do? We know this is a very difficult question, and you might give a different answer if you could think about it

longer, but please write at least five sentences describing how you would find truth (true things). After writing all the sentences, please place a number beside each action to rank them from most important (#1) to least important." Each response was coded as either internal (e.g., being alone to think, using common sense) or external (e.g., asking other people, reading, seeking guidance from religion).

Next, the students rated the trustworthiness of six sources of information, half of which were outside the self (living authority figures, traditional beliefs, modern reference works) and half of which were inside the self (your own logic, your own feelings/intuition, your own judgment combining logic and intuition/feelings). The items were rated rather than ranked to allow students to rate some sources as equally important. We anticipated that Chinese-influenced students would put less confidence in their own logical reasoning and more in outside sources of truth than would Western-influenced students. The internally focused questions exhibited internal consistency ($\alpha=.78$), and so were treated as a single scale. As a further examination of reliance on sources outside the self, students were asked three questions addressing whether they like to speak to others before determining questions of truth; these three questions were combined and will be referred to as the consultation items ($\alpha=.78$).

In order to address whether Western-influenced students would feel more concern regarding epistemological issues, students also were asked to rate their agreement with the following statement, "I care about the kind of questions about finding truth already asked on this questionnaire." To control for possible acquiescence bias, the item was reversed for half the respondents so that agreement meant they cared whereas for the other half agreement meant they did not care.

Consequences of graduation/failure. In order to assess pragmatic versus other motivations for learning, students were asked to list the five most important consequences that would occur if

they were to graduate from university and the five most important consequences that would occur if they were to fail out of university. The students then ranked items on each list from most important to least important. It was expected that Eastern influence would be associated with a more pragmatic orientation to education as evidenced in response to these items.

Results

Group comparisons: Closed Ended Scales

Variables considered for use as covariates in the group comparisons included age, faculty of science membership, program year, and gender. In a multivariate test for relations between these covariates and the 10 dependent variables, only age and gender produced p values below .20, and were used as covariates.

Group differences in self-reported approaches to learning are displayed in Table 3. The multivariate analysis was significant when all 10 independent variables of primary interest were included in a comparison of the three cultural groups controlling for age and gender ($F(20, 462)=2.58, p<.001, \eta^2=.100$). Univariate follow-up tests for a linear effect produced significant group differences for three of the ten independent variables related to the Confucian-Socratic framework. In particular, the effect was significant in the expected direction for reliability of internal guides to truth ($F(1, 242)=14.41, p<.001, \eta^2=.057$), traditional beliefs as guides to truth ($F(1, 242)=11.57, p=.001, \eta^2=.046$), and epistemic concern ($F(1, 242)=4.92, p=.027, \eta^2=.020$). The findings suggest that European-Canadian students are less likely to report faith in traditional beliefs as guides to truth, more likely to report trust in their own self as a guide to truth, and more likely to report being concerned about knowing how to discern truth. These findings fit with the Confucian-Socratic framework.

A trend was observed for European-Canadian students to express lower desire to confer with others before making decisions regarding truth and error ($F(1, 242)=2.99, p=.085$,

$\eta^2=.012$), which also fits the Confucian-Socratic framework. Surprisingly, a trend also was observed for European-Canadian students to report a more incremental view of intelligence than Chinese-Canadian students ($F(1, 242)=3.45, p=.064, \eta^2=.014$). This trend runs counter to the prediction of the Confucian-Socratic framework, which suggests that Chinese cultural influence cultivates a strong belief that effort determines success and thus by inference a belief that intelligence is malleable. This trend could be a Type I error or alternatively could represent a more substantial finding.

Group comparisons: Open Ended Epistemic Orientation Response

Participants wrote and then ranked five open ended descriptions of how they would seek truth. Each response was coded as either internal (e.g., being alone to think, using common sense), external (e.g., asking other people, reading, seeking guidance from religion), or other. Both an unweighted and weighted internal variable were calculated. The unweighted variable for each person was simply the total number of internal responses provided. The weighted variable took into account the participant rankings of their own proposed behaviors and consisted of the inverse rank of their first internal response. For example, if the person gave an internal response for only their fifth ranked response, then they received a score of one. If only fourth and later responses were internal, the person received a score of two. If the person's first ranked response was internal, then they received a score of five. Participants received a zero on both internal variables if they gave no internal responses. Good inter-rater reliability was achieved for each variable (Pearson r : internal .99, internal weighted .99, external .98, external weighted .96). For the group comparisons, no covariates were included because in a multivariate test for relations between the potential covariates (gender, age, program year, faculty of science membership) and the dependent variables none produced a p value below .20.

Limited support for the hypothesis was found. Western influence was weakly associated with a higher score on the weighted internal variable ($F(1, 255)=5.01, p=.026, \eta^2=.019$), but no differences were found for the other three variables (see Table 4). In other words, Western influence was associated with attributing more importance to internally-focused methods of finding truth on only one of the indicators of this tendency.

Group comparisons: Open Ended Pragmatic Approach to Learning Response

Participants wrote and then ranked five open ended descriptions of the major consequences that would occur if they were to graduate from university and the consequences that would occur if they were to fail out of university. Each response was coded according to its primary focus on either pragmatic concerns (related to effects on job, family, future concerns, money, or status), knowledge concerns, or other concerns.

As was done with the open ended epistemic responses, both weighted (according to rank) and unweighted variables were calculated. For example, if the person referred to a pragmatic consequence as their first concern they received a score of five for the weighted pragmatic variable, if a pragmatic consequence was not mentioned until their second concern, then they received a score of four and so on. The unweighted variables were simply the number of responses in each category. Separate variables were calculated for consequences of graduating and consequences of failing.

All four of the group comparisons for pragmatic concerns were significant at the $p<.05$ (see Table 5). As predicted, Chinese influence was associated with more pragmatic concern about graduating according to both the unweighted ($F(1, 245)=7.92, p=.005, \eta^2=.031$) and weighted ($F(1, 245)=5.82, p=.017, \eta^2=.023$) variables. Chinese influence was also, as predicted, associated with increased pragmatic concern related to failing according to both the unweighted ($F(1, 245)=5.34, p=.022, \eta^2=.021$) and weighted ($F(1, 245)=8.40, p=.004, \eta^2=.033$) variables.

None of the four comparisons for the knowledge-related concerns were significant at the $p < .05$ level. These results revealed that the Chinese-influenced students more frequently expressed pragmatic concerns regarding education, but that this increased pragmatic concern was not balanced by an equally large reduction in concerns directly related to learning. It seems thus that interest in the practical outcomes of education does not directly preclude interest in learning for its own sake.

It is possible that foreign students of any cultural group will tend to express higher concerns about practical consequences of graduating or failing because of the sacrifice others have made to enable them to study in Canada. This effect alone, however, would not explain the linear nature of the finding, such that Canadian-born Chinese Canadian students tended to express pragmatic concerns about education more frequently than European Canadian students, a finding better explained by cultural influence.

Discussion

The findings of this second questionnaire study were modest, but tended to support some aspects of the Confucian-Socratic framework. Western cultural influence was associated with reporting an increased reliance on the self as the evaluator of truth. This finding concurs with Socrates' tendency to denigrate people who believed the proclamations of others, even respected others, without independently evaluating these proclamations. Confucius advocated evaluating the words of others (e.g., 11:4), but more frequently focused on receiving and transmitting the wisdom of ancient texts (e.g., 7:1).

With regard to reliance on external truth sources the groups differed on only one item, self-reported trust in the reliability of traditional beliefs as guides to truth. As predicted, for this item, Chinese influence was associated with an increased tendency to trust in tradition as a guide to truth. The item was not limited to a single type of traditional belief, so respondents may have

been thinking about proverbs, ancient texts, religion, law, or possibly another type of traditional belief. The finding does support the framework's prediction, but it would be interesting to know what type of traditional belief system the students had in mind as they answered this question.

We predicted also that Western influence would be associated with greater concern regarding issues of epistemology, and this prediction was supported. Postmodern angst concerning how to find truth only will exist if one believes that truth is difficult to find. If one knows of reliable authorities for matters of truth, postmodern angst will probably not arise. Baumeister (1986, 1991) suggested that increased self-reliance in matters of identity can burden the self with the increased responsibility. Likewise in the epistemic domain, a reliance on the self may increase the likelihood of a sense of concern and possibly even confusion about issues of truth.

The prediction regarding collaboration in learning was not supported. Tang (1996) suggested that collaboration is the latent dimension in Chinese learning, but the results herein were not supportive. The three items designed to measure collaboration did not cohere sufficiently to produce a single collaboration scale. This lack of coherence suggests that measurement problems could possibly explain the failure to observe significant results.

Also, the analysis did not support the hypothesized entity versus incremental group difference. The entity versus incremental measure may have failed to exhibit group differences because this scale actually assesses a corollary of the hypothesis. The hypothesis suggests that Chinese culture cultivates a belief that effort leads to success, and that this belief in the value of effort will be more dominant among culturally Chinese than culturally Western students. We knew of no existing scale that directly assessed this belief in the value of effort and instead used Dweck's (1999) scale which assesses belief in the mutability of intelligence. We presumed that people who believe that effort leads to success also would believe that the effort-success relation

is mediated by improved ability. In other words, effortful practice leads to improved ability, which in turn leads to success. This in turn suggests that people believing in the potency of effort also will believe that ability can be changed, and so will score in the incremental direction on the Dweck (1999) scale.

Post hoc, the tenuous nature of this presumption becomes clear. Respondents could believe that effort will lead to success even if intellectual ability is not changeable. Effort could have its effect, not by leading to practice and improved ability, but instead by overpowering the effects of any continuing ability deficits. Alternatively, ability could be presumed to be similar across persons and for that reason relatively unimportant for determining success regardless of whether or not ability is mutable. Either of these beliefs would be compatible with a Confucian orientation. As a result, beliefs about the mutability of ability may be somewhat divorced from beliefs about whether effort determines success in the academic environment. This conclusion suggests that future questionnaire or lab studies could more specifically test this hypothesis by directly assessing belief in the potency of effort in the academic context. Our informal focus groups have convinced us that this hypothesis is worthy of further pursuit.

The student perceptions regarding consequences of graduating as described in the results section above are important because they suggest that a concern about pragmatic outcomes of education does not preclude striving for learning related goals. Chinese influence was associated with increased concern with pragmatic consequences of graduating and of failing, but was not strongly associated with learning-related concerns. Students concerned about getting a job and acquiring status may seem to be uninterested in learning, but this analysis casts doubt on that interpretation.

Overall, this second self-report study provided some further evidence that the Confucian-Socratic framework has value for describing cross-cultural differences in approach to learning as

seen in a Canadian context. In particular, this study provided support for predictions related to the pragmatic Confucian orientation to learning and the Socratic reliance on the self as the evaluator of truth. As with the previous study, all data in this study were self-reported, so conclusions about behavioral differences between the groups must remain speculative. Nonetheless, the data suggest that behavioral differences exist. Students who choose to either use or avoid using the self as a source of authority may construct different types of term papers and may as a result receive different grades from their instructors. This variable could be of significant importance.

The results may have been quite different, however, if the questionnaire focused on realms in which the students felt themselves to be expert. Pratt and Wong (1999) suggested that Chinese culture teaches a model of learning in which questioning and modifying come only after one has learned the fundamentals. Thus, differences in confidence in the self may disappear when working in a realm in which the students feel confident. Likewise, Confucius, even though he claimed to be a transmitter of knowledge, often spoke as if he, as an expert, possessed authority to pronounce truth. When responding to his students' questions, Confucius often did not cite an ancient text as his source of authority. He seemed to assume that being an expert in ancient texts and being morally upstanding gave him the freedom to pronounce truth and to pronounce how this truth should be applied to particular situations. Even though Confucius claimed to transmit rather than innovate, he is recalled as being a very innovative scholar (e.g., Creel, 1949).

CHAPTER 4: EXPERT INTERVIEWS

The self-report studies provided some support for the utility of the Confucian-Socratic framework in describing cross-cultural differences in a Canadian postsecondary educational context. A small (N=5) subject matter expert interview study was implemented to check that the portrayal of Confucius and Socrates on which the framework is built agrees with that held by

subject matter experts.

Method

A short questionnaire was constructed from statements about approach to learning thought to be characteristic of the ideas of Confucius or Socrates as portrayed in Chapter 1. Participants (N=5), who were faculty members in Asian studies, Religious studies, or Classics, rated the statements on scales ranging from central to opposite of the ideas of Confucius and Socrates. Only one of the experts gave ratings for both Confucius and Socrates; the others reported being qualified only to answer for either Confucius or Socrates. The questionnaire is reproduced in Appendix C in a slightly modified format. In the appendix, a C has been added at the beginning of items for which Confucius was expected to be rated higher and an S at the beginning of items for which Socrates was expected to be rated higher. These indicators were not present when the experts answered the items.

Results

The number of participants was not large enough for sophisticated statistical analysis, so the scores for each item were added across raters ($\alpha=.83$ for Socrates and $\alpha=.87$ for Confucius). Expected differences between Confucius and Socrates were observed for 21 of the 23 questions. This result has a binomial probability of less than .001. The first nonsupportive item (#15), stated that learners are expected to be motivated by love for knowledge as an end in itself; all the experts rated both Socrates and Confucius at the highest level on this item. Interestingly, the findings here complement those of Study 3 which suggest that interest in the practical outcomes of education does not necessarily preclude interest in learning for its own sake. The second nonsupportive item (#23) stated that "The main task of the learner is to search for truth regarding morality and virtue." Though Confucius' focus on behavioral reform exceeded that of Socrates, we expected Socrates to be rated more highly than Confucius on this item

because of the Socratic focus on searching as central to the learner's role. The item is problematic because of the mixing of two ideas: searching and pursuit of virtue. Responses may have differed depending on which aspect of the item was attended to by the respondents.

Discussion

Any modern portrayal of Confucius and Socrates must be speculative because the foundational texts for learning about these experts each have their own problems. Revision of their ideas could have occurred when these texts were originally written or in the thousands of years since the texts were first recorded. Furthermore, debate has existed even regarding which texts best reflect the ideas of these historical figures (e.g., Creel, 1949; Vlastos, 1994).

Nonetheless, the dimensions of central importance to the Confucian-Socratic framework were supported in this small interview study. This suggests that these approach to learning dimensions of interest in the modern context are not simply being projected by the Confucian-Socratic framework into the ancient texts.

The interviews with the experts were enlightening in a number of ways. In one noteworthy comment, an expert suggested that the use of the term "learner" would be more appropriate than "student" when discussing Socrates because the term "student" assumes, unlike Socrates, that learners submit to a teacher. The comment is worthy of note for constructing an accurate portrayal of Socrates. The comment also highlights the fact that in a modern postsecondary context, probably none of the students could be portrayed as purely Socratic because each of the learners is a student submitting in at least some ways to one or more teachers. All of the students will combine both Socratic and Confucian approaches, and differences between students in relation to the Confucian-Socratic framework are relative rather than absolute.

CHAPTER 5: WORK SAMPLE ASSESSMENT OF THE FRAMEWORK

This third study examined the Confucian-Socratic distinction in a student work sample. In many ways, work samples represent an improvement in methodology over self-reports. Work samples of many different types can be examined including essays, class notes, class participation, oral reports, and multiple choice tests. This study examined student essays from a first year university English final exam. Essays are a valuable resource for assessing certain aspects of the Confucian vs. Socratic framework because essay assignments allow students to engage in criticism and to describe self-generated hypotheses, aspects of the Socratic approach usually not evident in responses to short answer or multiple choice test questions.

Previous studies under the banner “contrastive rhetoric,” a term coined by Kaplan (1966), have examined writing style differences between people of differing cultural and linguistic backgrounds. Kaplan’s (1966) classic paper in contrastive rhetoric focused on essay structure, and in so doing addressed his question of why foreign students writing in English, even foreign students with good English grammar, tend to write essays that are perceived by Western instructors as lacking coherence or organization. Kaplan concluded that Asian students tend to write in an indirect manner, which he defined as not discussing a subject directly, but instead presenting a number of indirect approaches to the subject. Kaplan portrayed Asian rhetoric visually as a spiral approach to discussing a subject as opposed to a linear approach which he argued characterized the West. Mohan and Lo (1985) disputed Kaplan’s findings by providing evidence that direct approaches to subject matter can be found throughout both traditional and modern Chinese writing, but others have reported suggestive evidence that indirect models of writing sometimes are especially evident in East Asian writing. In particular, other studies on East Asian writing have highlighted the continuing influence of the “chi-cheng-juan-he” model in Chinese writing (Fagan & Cheong, 1987) and a similar pattern called “ki-shoo-ten-ketsu” in

Japanese writing (Hinds, 1983). These writing models bear some similarities to the “introduction-body-conclusion” model common in the West, but include digression from the main topic as a major component of the essay.

The Socratic vs. Confucian contrast suggests that Chinese-influenced students will be less comfortable using their personal voice to argue strongly for their own ideas and logic than will Western students on topics for which they are not experts. Anecdotal reports of how Chinese writers deal with thesis statements support this suggestion. Matalene (1985) suggests that Chinese writers tend to delay thesis statements and Cai (1999) suggests that Chinese writers tend to state their thesis indirectly as a suggestion or through an analogy, anecdote, or rhetorical question, all of which could be accounted for by a Chinese tendency to avoid or at least defer statements of personal beliefs and feelings in academic discourse (Cai, 1999). In place of discussions of their own ideas and logic, Chinese-influenced writers may tend to draw truth from other sources. In keeping with this suggestion, Matalene (1985), in her insightful discussion of Chinese writing styles as observed during a semester teaching in China, suggests that Chinese writers tend to assume that truth can be found in authority figures, historical incidents, and traditional beliefs (see also Fagan & Cheong, 1987). Yates and Lee (1996) likewise suggest that culturally Chinese individuals tend to appeal to authority outside the self to find truth. Yates and Lee, in their discussion of Chinese decision making, suggested that culturally Chinese individuals follow a folk-precedent matching procedure, which compares current issues to historical incidents to find appropriate solutions; this treatment of truth concurs with the Confucian model of learning, but contrasts with a more Socratic appeal to one’s own reasoning.

The Confucian model also suggests that Chinese-influenced student essays will betray an assumption that discussion of virtue deserves a place in academic discourse. Matalene’s experience supports this assertion. She reported that for her students in China, a strong assertion

was not the final pinnacle of their essay, but instead, the essays tended to move from assertion to exhortation. The students used their essays as opportunities to proclaim the importance of right living. Likewise, Li (1996) reported that high school teachers in mainland China expected the presence of moral injunctions in student essays and viewed writing assignments as a means of promoting morality in society; their essay grades depended in part on the moral value of the essay content. American high school teachers in contrast resisted the presence of moral injunctions in student essays. American teachers in the survey said that writers should state the facts and let the reader draw moral conclusions. This finding can be explained by a broader Western discomfort with discussions of moral absolutes. Bellah et al. (1985) reported that Americans in their interview study frequently alluded to morality, but felt uncomfortable and lacked skill when asked to further discuss their moral beliefs. This contrasts with a Chinese tradition in which virtue is more highly salient and more openly discussed (Domino & Hannah, 1987). Li (1996) reported the reverse effect in the emotional domain. Chinese high school teachers criticized direct statements regarding emotion. They instead exhorted students to state emotion indirectly through the use of images from nature. This expectation of indirectness contrasted with American high school teachers' call for the Chinese writers in the study to more directly explore emotions and other internal experiences. Thus, whereas Chinese teachers expected moral implications to be directly communicated and emotional experience to be indirectly communicated, American teachers expected the reverse.

The Confucian model also suggests that poetic characteristics will be more frequent in essays by Chinese students than in essays by Western students. This hypothesis concurs with suggestions that Chinese student writings are poetic both when written in their first language (Li, 1996) and even when written in English (Fagan & Cheong, 1987). In particular, the essays by Chinese students, it is contended, more frequently contain elements of metaphor, analogy, and

visual imagery than essays by native English speakers (Fagan & Cheong, 1987; Li, 1996; Matalene, 1985). Some of these traits are perceived by Chinese as ornamenting the text, yet Westerners may instead perceive them as distracting from the main point of the text (Connor, 1996). The effect size for this hypothesized poetry-related difference in the current study may be small because limited linguistic ability may make some of the most culturally Chinese students hesitant or even unable to create metaphor, analogy, visual imagery, and other devices that could be described as poetic. Also, some poetic devices such as traditional four syllable phrases that exist in Chinese do not exist in English.

Some dimensions of the Socratic and Confucian models of learning such as the Confucian focus on effort and the Confucian desire for activities to be structured by an authority figure will not be addressed in this study. The current study nonetheless provides an important test of whether Confucian versus Socratic cultural differences are evident in student writings.

Method

Participants

One hundred seventy two students from a first year university English class participated in the third study. Eighty-two of these were classified as European-Canadians and 55 as Asian born Chinese-Canadians. There were less than 30 Canadian born Chinese-Canadians to use as the middle cultural group for the analyses, so for this study the middle group was expanded to include all Canadian born East Asian-Canadians, of whom there were 35. This revision added four students reporting Japanese ethnicity and two students reporting Korean ethnicity to this middle group. Japanese culture and Korean culture like Chinese culture have been influenced by Confucian ideals.

The students were distributed among the following academic faculties: Arts (n=38), Science (n=94), Commerce (n=21), and other (n=18). The mean age of the participants was 18.7 and the sample included 99 women and 73 men.

Procedure

Participants signed a consent form giving permission for the experimenter to photocopy the student's final exam for research purposes and completed a one page demographic questionnaire. After the final exam, participants were debriefed.

The source of essays, the final exam in a first year writing class administered by the English Department at the University of British Columbia, provides good ecological validity because the sample represents the university population: first year English is required of most students at the university. The increase in ecological validity is traded off by a decrease in experimenter control over the essay topics. Each student wrote a persuasive essay chosen from among three possible topics. One set of students was given the following topics from which to choose: Should cellular phone use while driving be outlawed? Do adult cartoons (e.g., South Park) have artistic or educational merit? Imagine you are the University president; write a persuasive letter to the University community promoting a new policy of your choosing. A second set of students was given the following topics: Are manners necessary to civilization, or are they unnecessary and dishonest? Is there such a thing as useful gossip? Considering health and environmental costs, do the disadvantages of cars outweigh their utility? The analyses were conducted both controlling for topic and not controlling for topic. The results were substantially the same for all but one variable (tendency to use the word "should"), so only the latter results are reported except for that one variable for which both sets of results are reported.

Measures

Personal voice to arguing for ideas. Several different ways of assessing student tendencies to express their own voice were included in the study: strength of opinion expressed, early thesis statement, and tendency to use particular words.

As an indicator of willingness to express personal beliefs, each essay was scored for strength of opinion expressed on a scale from zero to three. Zero suggested that the author's position was not discernible, and three indicated that the author strongly argued with few or no concessions to an opposing view. Each of the essays was scored for this variable by four coders whose scores were then averaged in order to increase reliability ($\alpha=.84$). Also, the four coders read each essay to code whether a direct thesis statement was present in the first essay paragraph; a delayed or indirect thesis statement could indicate a hesitation to express personal beliefs (Cai, 1999; Matalene, 1987). Four judges scored this variable; these ratings were then averaged ($\alpha=.80$).

Also, each essay was analyzed with the computerized text analysis program, Linguistic Inquiry and Word Count (LIWC; Pennebaker & Francis, 1996, 1999). The program calculated the percentage of words in each essay belonging to particular categories; percentages were more relevant than absolute frequency of words being used because the essays differed in overall length, and the use of percentages controlled for this length factor. The categories were selected to be indicators that students were possibly taking the role of independent evaluator of ideas. Two of the categories used (first person singular and insight) already existed in the program and needed no modification. Some additional word classes were constructed according to the program authors' (Pennebaker & Francis, 1999) suggestions. The essay coders and others involved in the project brainstormed lists of words to include in each category. Three individuals with graduate level education then acted as judges who then reviewed the word lists to decide which words

should be retained in the categories. The percent of first person singular ("I"), disagreement (e.g., disagree, dispute, oppose, object), and insight (e.g., think, know, consider) words were calculated for each essay. It was expected that Western students would use more words in each of these categories suggesting that they may be more frequently taking a role of independently evaluating truth (or at least speaking more frequently with terms that assume individuals are the locus of truth evaluation). In a previous study comparing Thai and English essays, Bicker and Peyasantiwong (1988) found that Thai student writers less frequently used "I" (actually the Thai equivalent word) or other personal pronouns than U.S. students even though personal pronouns are extensively used in spoken Thai.

Tendency to appeal to outside sources of truth (authority, history, tradition). Coders scored each essay on tendency to appeal to sources found outside the self (authority figures, dictionaries, history, or religion). Coders assigned one point for each type of appeal made in an essay (minimum score of zero and maximum of four). Four coders rated each essay; the scores for the four coders were then averaged ($\alpha=.79$) to construct the variable. Confucius (7:1-3), when he taught, claimed to be merely transmitting knowledge garnered from authoritative others, but Socrates eschewed the supposed wisdom of respected men. We expected that Chinese-influenced students would more frequently cite outside sources of knowledge to be considered and acknowledged.

Tendency to refer to outside sources was also assessed with the text analysis program by assessing the frequency of references to authority figures (e.g., teacher, scientist, mom, dad), religion (e.g., religion, scripture, Confucius, Buddha, Bible), or to a dictionary (dictionary). The frequency of agreement words (e.g., agree, agreement, accept, accede) was also assessed. Agreement is a collective oriented action expressing respect between thinkers; this fact suggests that Chinese influence will be associated with an increased tendency to express agreement.

George Grant (1995/1998), who wrote in a Western context, suggested that modern people feel a need to express their will as fully as possible, not only in their behavior, but also in their thinking; thus they have difficulty showing reverence for others' ideas. This hesitance to respect the ideas of others may especially characterize the West and could be expressed in a reduced tendency to use agreement words in an essay.

Presence of moral judgments. Presence of moral exhortation also was assessed by the raters. It was expected that Chinese-influenced students would feel more comfortable with discussion of morality in academic discourse than would Western students. In addition to four judges rating the presence of moral exhortation ($\alpha=.74$), this construct also was operationalized as in Bickner and Peyasantiwong's (1988) study by the frequency of use of the word "should." Bickner and Peyasantiwong found that essays written by Thai students in Thailand more frequently gave advice regarding appropriate action and more frequently used the word "should" (actually the Thai equivalent of this word) than did essays by U.S. students. Frequency of use of a more broad category of morality-related words also was assessed (e.g., should, ought, obligation).

Presence of poetic devices (visual imagery, metaphor, analogy, and exploration of contradiction). Student use of poetic devices was not coded because such devices were used very infrequently in these final examination essays. We expect that take-home essays would reveal more frequent use of poetic devices. Students did, however, sometimes refer to poetry or poetic devices, so the text analysis program was used to assess the frequency with which students referred to poetry or poetic devices in their essays. In other words, the tendency to use words referring to poetry or devices (e.g., poetry, metaphor, simile) was assessed with the text analysis program, but students' creation of actual poetic devices was not assessed. Prior reports suggest that students and writing instructors in China (Li, 1996) conceive of good writing as containing

elements of poetry. The effect sizes for any findings were expected to be limited because linguistic ability of some of the Chinese-influenced students could hinder their ability to discuss poetic devices in English.

Results

Vocabulary-Based Results

The essays were analyzed using the text analysis software as described above (see Table 6). In a multivariate test for relations between the potential covariates (age, gender, program year, and faculty of science membership) and the 11 dependent variables, none of the potential covariates produced p values below .20, so they were not included in the group comparison analyses.

The multivariate group comparison for the essays ($F(11, 160)=1.87, p=.047, \eta^2=.114$) was statistically significant, but none of the follow-up univariate analyses were significant at $p<.05$. Two trends emerged such that East Asian influence was associated with a slightly higher tendency to use agreement words ($F(1, 170)=3.48, p=.064, \eta^2=.020$) and to use the word “should” ($F(1, 170)=3.32, p=.070, \eta^2=.019$). The first finding can be interpreted as an expression of a Confucian focus on harmony in the learning environment and the second finding can be interpreted as an expression of a Confucian focus on behavioral reform.

When essay topic was added as an additional control factor, the results were substantially unchanged except that the p -value for use of the word “should” became significant ($F(1, 166)=6.35, p=.013, \eta^2=.037$). No interactions between group and topic were significant ($p>.25$), so the change in p -value likely simply resulted from a reduction in the error term.

Essay Coding Results

For the analyses of the coders' judgments (see Table 7), the same set of covariates as in previous analyses were considered. Gender and age were included based on the criterion of a

multivariate relation of $p < .20$ with the dependent variables.

The multivariate group comparison for the coded variables was not statistically significant ($F(4, 160) = .341, p = .850, \eta^2 = .008$). For completeness, the four univariate analyses (strength of opinion, delay of thesis, appeal to external authority, moral exhortation) also were conducted, but none of these was significant at $p < .05$. The results were unchanged when topic was added as an additional control factor.

Discussion

Though the findings for studies 1 and 2 supported the framework, and thus were more straightforward to interpret, the findings for this essay study were more difficult to interpret. Most of the hypotheses were unsupported.

Several reasons could be suggested for this mainly null pattern. First, the semester of university English instruction these students had experienced may have reduced the effect size of cultural differences displayed in writing style such that this study lacked power to detect differences. Possibly the study would produce some of the expected effects if conducted on essays written at start of the students' first year at university or at a less selective postsecondary educational context where the range in student approach to learning may be less restricted. Also, the exam situation put pressure on students to produce the type of essay favored by their instructor. An assignment of less importance to student grades might be better for assessing their own favored writing style.

Furthermore, collectivism may enhance social sensitivity such that, as Biggs (1996b) suggested, culturally Chinese students are especially sensitive to situational demands. Thus, even if the cultural groups differ in underlying beliefs regarding the nature of learning, the situational demands may largely overpower the belief differences in at least this domain of an essay exam after a semester of English instruction.

Also, on further reflection, some problems with using strength of opinion as an indicator of a Socratic approach have become clear. Socrates was quick to generate hypotheses, and that tendency sometimes may create an impression that he was opinionated, but actually often he hesitated to strongly assert that he knew himself to be right. Confucius, however, frequently expressed strong opinions, though he would have given credit for many of those opinions to the insight he had gained from ancient texts.

Thus, the perceived locus of validation (the self versus outside authority) is probably a more important variable to attend to in future studies than is strength of opinion. That source of validation was examined in this study by assessing frequency of "I" and by assessing tendency to refer to outside sources of truth. The results of this study indicate, however, that variables related to the dimensions can be quite difficult to code reliably and will not always produce the predicted group differences.

The results provide some evidence that Chinese influence may be associated with an increased tendency to use the word "should", possibly indicating a Confucian focus on behavioral reform. The evidence regarding behavioral reform was mixed however, so firm conclusions are not warranted.

CHAPTER 6: GENERAL DISCUSSION

The Confucian-Socratic framework provides a resource for developing predictions related to student approaches to learning. The purpose of this dissertation was to provide an initial assessment of the utility of the framework for describing group mean differences between culturally Western and culturally Chinese student approaches to learning in a Canadian postsecondary context.

Differences between the groups in the self-report studies tended to support the framework. Chinese cultural influence was associated with increased self-reports of pragmatic

goals for learning, increased desire for structured knowledge, and increased trust in traditional beliefs as guides to truth. We also expect that future research will support the hypothesis that Chinese influence in this context is associated with a reduced tendency toward the innate ability fallacy (Druckman & Bjork, 1994), the assumption that primarily ability and not practice determines success. However, a test of a presumed corollary that Chinese influence would be associated with increased belief in the mutability of ability was not supported in this study.

Western influence was associated with increased self-reports of privately and publicly questioning material presented by instructors, of rating ideas presented in class, of generating alternatives to ideas presented in class, of looking to the self as the evaluator of validity, but also of having concerns about determining the best means of evaluating truth.

The statistically significant effects in the self-report studies tended to be small or medium according to Cohen's effect size cutoffs (as cited in Howell, 1992), suggesting that much overlap exists between the groups. The within group heterogeneity may be even greater in less selective postsecondary educational contexts. As a result, simply knowing a student's cultural background will not allow instructors to make accurate predictions of the student's self-perceived approach to learning.

The work sample study was generally not supportive of the framework. Chinese influence was associated with an increased tendency to use the word "should" in the final exam essays, possibly suggesting an increased willingness to explicitly include moral discourse in an academic context, but other indicators of the same tendency were not statistically significant. Also, Chinese influence was associated with an increased tendency to use agreement words, possibly an expression of a Confucian focus on harmony in the learning environment, but this effect was a trend and was not significant at $p < .05$. As per usual with predominantly null results, conclusions are difficult to draw from this work sample study. Possibly, group differences on these dimensions

largely disappear in work samples because many students can compensate by displaying an approach to learning that is expected by their instructor and that is at odds with their preferred approach to learning. Possibly the relatively small group differences in self-perceptions regarding approach to learning translate into even smaller group differences in school assignments produced by the groups, differences that would then be difficult to detect. Any conclusions about group differences in essay writing from this work sample study would be speculative.

Because the self-report studies provided partial support for the utility of the framework in a Canadian context, the impact of a Confucian approach to learning in a Western postsecondary educational institution deserves attention. In some contexts the Confucian approach probably will provide advantages (Biggs, 1996a). Even if instructors claim to be teaching other cognitive skills, a Confucian orientation will be rewarded if grades are based on an ability to solve familiar problems or to acquire and reproduce foundational knowledge. In other contexts, however, a Confucian approach will be a disadvantage. Some Western faculty members are critical of Confucian approaches to learning (Gallois et al., 1992; Pratt & Wong, 1999; Samuelowicz, 1987). For example, some faculty members may conclude that students adhering to a Chinese culture are less capable because they do not speak up in class or because they ask for greater structure from instructors (Gallois et al., 1992).

Western instructors may disparage Confucian approaches to learning because the approach is culturally different from their Western ideal. Over 400 years ago, Michael de Montaigne suggested in his essay on cannibals that, "man calls barbarous anything he is not accustomed to; it is indeed the case that we have no other criterion of truth or right-reason than the example and form of the opinions and customs of our own country" (Montaigne, 1592/1995, p. 8). Montaigne may have overstated his case, but the point may deserve attention when evaluating approaches to learning. Others may be tempted to disparage Confucian approaches to

learning because they in some ways appear similar to approaches to education used in North America in the earlier parts of this century. C. S. Lewis (1955) used the term “chronological snobbery” to describe faith that the modern must be better than the ancient. At times, unfashionable methods of education, which retain aspects of a Confucian approach, may outperform more popular educational methods (Lindsley, 1992; Morrell, 1998; Watkins, 1988).

Arguments about how students should learn and more often how teachers should teach seem to have attracted increasing attention in North America in recent years (e.g., Cayley, 1998, “How Dubya,” 2000). The Confucian-Socratic framework has relevance to these debates. Proponents of a basic skills or basic knowledge approach (e.g., Hirsch, 1987) may favor encouraging a more Confucian orientation towards learning. Others more sympathetic to a constructivist orientation (e.g., Bruffee, 1993) may instead favor encouraging a more Socratic orientation in education.

Tannen (1998, see also Peng & Nisbett, 1999) argued that Americans when confronted with a debate will tend to choose and argue for one of the extreme positions in the debate and that this tendency is often counterproductive. Westerners who have difficulty seeing the value of a Confucian orientation may be interested in material written from a Confucian perspective. For example, in a publication from Beijing China’s Central Institute of Educational Research, Yang (1986) argued that the Socratic method leads to confusion because students fail to read widely or engage in realistic observation before they engage in argument. According to this perspective, the Socratic method can lead to argument by the uninformed, to a pooling of ignorance, and to poor rather than good thinking. Westerners also may find the work of Perkins (1992) interesting, especially if they are concerned that a Confucian approach will lead to inactive knowledge. Perkins combined Confucian and Socratic approaches. He promoted helping students gather knowledge, but a special form of thoughtful knowledge that is neither inert, nor naïve, nor

ritualistic (only being active in response to certain ritual-like questions). Educators will do a great deed if they can promote, as Perkins suggested, thoughtful acquisition (Confucian) and inquiry (Socratic) such that the students' acquired knowledge becomes fully understood, active, not naïve, and elicited in many domains beyond the academic context.

Academic Acculturation

Students who come from Confucian-influenced cultures to study in the West may experience pressure to adapt to a culturally distant academic style, but little if any research has examined the differential effectiveness of varying strategies for making this cultural adaptation. More general research on adaptation to a new culture, frequently referred to as acculturation research, may provide a guide to the best strategy for this academic adaptation.

Berry's influential acculturation model (Berry & Sam, 1997) accounts for four different acculturation strategies. The foundation of the model rests upon a latent continuous dimension quantifying one's identification with and participation in a particular culture. For descriptive purposes, Berry dichotomizes the dimensions, so that people who identify with and participate in a given culture are categorized as high; others are categorized as low. Unicultural persons can be distinguished into just two mutually exclusive categories of high and low on the single dimension of identification with and participation in their own culture. People experiencing acculturation, however, can be rated on both the dichotomous variable of orientation toward the host culture and the dichotomous variable of orientation toward their heritage culture. This rating on two independent dichotomous variables creates four logical categories. Marginalization, considered by Berry and Sam (1997) to be the least adaptive strategy, refers to giving up the original cultural identity while also failing to participate in the host culture (low on both heritage and host culture). The strategy of separation involves maintenance of the former cultural identity without participation in the new culture (high on heritage culture, low on host culture). In contrast,

assimilation refers to giving up the original cultural identity while fully participating in the host culture (low on heritage culture, high on host culture). In the integrative or bicultural strategy, the person maintains his or her original cultural identity and characteristics and adds a new behavioral repertoire to allow identification with and participation in the host culture (high on both cultures).

Berry and Sam (1997) and LaFromboise, Coleman, and Gerton (1993) suggest that an integrationist strategy of acculturation is more adaptive than marginalization, separation, or assimilation. The assertion that integration is superior receives some modest support from Linville's (1987) finding that higher self-complexity buffers against the effects of stress. The integration strategy leads to identification with more than one culture and in that sense leads to a more complex self. Linville's research, however, did not focus on acculturation, so generalizability is an issue. In contrast, recent acculturation work (Ryder, Alden, & Paulhus, in press), which independently assesses orientation toward heritage and host culture, has uncovered evidence that only attitude toward the host culture predicts mental health. This finding suggests that assimilation and integration are equally adaptive strategies.

We anticipate that in academic acculturation, strict strategies of marginalization and separation will be maladaptive, at least for students who want to excel academically. Complete refusal to identify with and participate in the new academic culture will lead to low grades from host culture instructors rating the students at least partly according to the host culture's academic standards.

In terms of ability to function well academically in the largest number of environments we expect that integration would be better than assimilation because a Socratic orientation could be advantageous for some tasks, but a Confucian style could be advantageous for many other academic tasks even in the West (see Biggs, 1996b for a similar suggestion). Tasks such as multiple choice tests, fill in the blank tests, and even many essay exams in the West require

acquisition, understanding, and ability to recall and explain accepted truths rather than ability to question, evaluate, and generate ideas. These requirements suggest that the academic domain in the West often requires tasks best described as Confucian. Marton and Booth (1997) present evidence suggesting that postsecondary instructors in the West may frequently underestimate the extent to which the academic task in Western universities could best be described as Confucian. Many university instructors in the West claim that their main goal is to encourage critical thinking among their students, but their evaluation methods instead encourage learning oriented toward acquisition, recognition, re-expression and application of facts (Marton & Booth, 1997). The success of Asian students in the West (Barringer, Takeuchi, & Xeno, 1995; Hsia & Peng, 1998; Sue & Okazaki, 1990) may be, in part, due to the preparation East Asian cultures provide for Confucian tasks. Ability to solve unfamiliar problems in most sciences requires thorough mastery of fundamentals, and a practiced ability to apply those fundamentals to the real world. This ability, we expect, overlaps with the Confucian approach to learning.

This recognition that both Confucian and Socratic styles are necessary for university success in the West raises the question of whether the Socratic label adequately describes Western students' approaches to learning in this context. Most cross-cultural differences are best described by overlapping, primarily normal distributions on continuous variables, not merely by dichotomies even though dichotomous labels often are used for convenience (Tweed, Conway, & Ryder, 1999). There is no reason to expect that approach to learning is an exception to this tendency. The Confucian and Socratic descriptors highlight dimensions on which cultures are hypothesized to differ, but are not presented as perfect descriptors of any culture's approach to learning.

The ease with which students can develop an integrated bicultural academic ability is not yet clear, but just as some (e.g., Kagitcibasi, 1997; Singelis, 1994) have theorized that particular

individuals may be high on both individualism and collectivism, some individual students may be high on both Socratic and Confucian approaches to learning. Though acculturation to an integrated identity (Berry & Sam, 1997) may be desirable, the task may not be easy. International students frequently are confused in terms of instructor expectations. These difficulties do not dissipate quickly, but instead, according to student reports, continue well past the first year (Mullins et al., 1995). Li (1996) provided a compelling testimonial that American instructors, though they tended to deny the existence of clear standards that guide their evaluations of student essays, held expectations that differed from those of his instructors in China. He found that marks were easy enough to attain because Western instructors were more generous with marks than were instructors in China, but he nonetheless had a difficult and confusing time trying to discover the standards of the Western instructors. The instructors themselves had difficulty articulating these standards.

The focus on acculturation to an integrated cultural identity highlights the notion that issues being discussed here are cultural, not racial. As a result, one cannot simply guess the academic style of a student by observing the race of the student. Also, one cannot easily guess the direction of acculturation being experienced by students. We have encountered Chinese students in North America who reported experiencing an acculturation into Chinese culture. At one time they felt thoroughly Westernized in beliefs and attitudes and had mostly Caucasian friends, but then moved to a different region of the country with a strong Chinese cultural enclave. They then experienced an acculturation in which, in their words, they became more Chinese. Likewise, some Western students who have been taught quite firmly to respect authority figures may experience an acculturation in upper level university courses or graduate school similar to that of students from Confucian-influenced nations; they feel pressure to question accepted truths and consider their personally generated alternatives. Some educational goals may directly oppose

the cultural background of some students. For example, John Dewey (1938) called for teachers to strive to develop individuality among students, but this goal opposes the collectivism that characterizes China and in fact most of the world's population (Hofstede, 1980). Likewise, Knowles (1990), a modern and highly regarded theorist of adult education, pushed an individualistic educational approach called andragogy that combats acceptance of power distance in education, which aims to develop inner directedness and individuality, and which therefore clashes with Chinese culture (Pratt, 1990).

In response to these cultural differences, instructors should probably seek to provide clear guidance as to how each approach to learning will be rewarded in particular academic tasks. Gallois et al. (1995) suggested that universities have strong rules about academic behavior that are not usually explicitly taught. Only members of particular cultures or sub-cultures know these rules, and others therefore are at a disadvantage. Such clarity would help all cultural groups including the dominant one at a particular institution. Chinese students certainly are not alone in having a learning style that sometimes handicaps them at university. Western culture may fail to adequately prepare many students for the Confucian oriented requirements of a significant subset of university courses (Biggs, 1996b; Kim & Chun, 1994; Stevenson & Stigler, 1992). In a survey of students at Australian universities, both local students and international students reported that they had difficulty adjusting to the teaching and learning styles of the university and wished instructors would more clearly communicate their expectations (Mullins et al., 1995).

Some of the advice provided by Western instructors, however, may be confusing to students and may underestimate the difficulty of academic acculturation. Shen (1989) reported that his teachers told him to be himself and assumed this would help him succeed, but he knew that what they really wanted was for him to stop being his Chinese self and instead to create a Western self and be that self. Also, teacher's exhortations to engage in Socratic approaches to

learning may be perceived by some Chinese students as exhortations to display bad character, exhortations which understandably would be resisted. Saul (1994), in his dictionary of common sense, described Socrates as follows:

He was rude to everyone. That was his method. It did not mean he considered himself of a superiority which justified contempt for lesser intellects. He simply had a foul character....He spent his life wandering around Athens annoying everyone in the city. (p. 267)

Saul is from the West, yet the description nonetheless points out that exhortations to exhibit Socratic traits may be perceived by some as exhortations to display bad character.

Finding a cultural clash with a particular goal, however, need not always mean the goal is invalid. A goal that creates a cultural clash, such as teaching culturally Chinese students to question authority or teaching culturally Western students to understand before criticizing or to give up the innate ability fallacy, an assumption that ability and not effort determine success (Druckman & Bjork, 1994), may nonetheless be valid and important in some contexts. Shen (1989) and Matalene (1985) allude to an anecdote of American business people giving a gift of cheddar cheese, which many Chinese dislike, to Chinese business partners. They then compare Western English instruction to "compositional cheddar cheese" and suggest that Western teachers not be afraid to give the cheddar cheese, but be sure to hand it over sympathetically, slowly, and with awareness of how it tastes to the receiver.

Future Research

Some future research directions have already been suggested above and will very briefly be reviewed here: Future research could more directly assess the belief that effort determines success and thus more adequately test the related hypothesis from the Confucian-Socratic framework than was done here. Also, the utility of the framework as an educational tool seems

worthy of examination. As stated previously, several students mentioned that learning about the framework has helped them understand why they have struggled with certain academic tasks in the past and helped them see how they could do better in the future. Describing the framework to students may help students of all cultural groups realize their own deficits and thus assist them in becoming more flexible learners.

In addition to those directions, future research with the Confucian-Socratic framework could involve a number of different domains. First, the nature and feasibility of academic biculturalism could be explored. What distinguishes students who can display both Socratic and Confucian approaches to learning? Laboratory studies could examine whether bicultural students tend to be better able than unicultural students to switch between Socratic and Confucian approaches as the situation requires. Second, some Western faculty members may resent Confucian approaches to learning; the pervasiveness and impact of this resentment could be explored through interviews and questionnaires. Third, researchers with more of a cross-cultural psychology orientation rather than a cultural psychology orientation may seek to unpack the cultural variables underlying differences in learning orientations (e.g., van de Vijver & Leung, 1997). To unpack culture is to separate the effects of variables such as collectivism, power distance (Hofstede, 1980), moral discipline, and Confucian work dynamism (Chinese Culture Connection, 1987), which are thought to capture cultural differences. Such cross-cultural research would pursue identification of the latent variables that drive Confucian-Socratic differences in student approach to learning.

CHAPTER 7: SUMMARY

The Confucian-Socratic framework provides a resource for developing predictions related to student approaches to learning. The purpose of this dissertation was to provide a preliminary assessment of the utility of the framework for describing group mean differences between

culturally Western and culturally Chinese student approaches to learning in a Canadian postsecondary context.

Differences between the groups in the self-report studies tended to be supportive of the framework. Chinese cultural influence was associated with increased self-reports of pragmatic goals for learning, increased desire for structured knowledge, and increased trust in traditional beliefs as guides to truth. We also expect that future research will support the hypothesis that Chinese influence in this context is associated with a reduced tendency toward the innate ability fallacy (Druckman & Bjork, 1994), the assumption that primarily ability and not practice determines success. However, a test of a presumed corollary that Chinese influence would be associated with increased belief in the mutability of ability was not supported in this study. Western influence was associated with increased self-reports of privately and publicly questioning material presented by instructors, of rating ideas presented in class, of generating alternatives to ideas presented in class, of looking to the self as the evaluator of validity, but also of having concerns about determining the best means of evaluating truth.

Only one of the statistically significant effects in the self-report studies produced a large effect size according to Cohen's effect size cutoffs (as cited in Howell, 1992), suggesting that on most of the variables much overlap exists between the groups. The within group heterogeneity may be even greater in less selective postsecondary educational contexts. As a result, simply knowing a student's cultural background will not allow instructors to make accurate predictions of the student's self-perceived approach to learning. As is typical in cultural psychology, group differences represent overlapping distributions rather than simple dichotomies (Tweed, Conway, & Ryder, 1999).

The work sample study was generally not supportive of the framework. Chinese influence was associated with an increased tendency to use the word "should" in the final exam, possibly

suggesting an increased willingness to explicitly include moral discourse in an academic context, but other indicators of the same tendency were not statistically significant. Also, Chinese influence was associated with an increased tendency to use agreement words, possibly an expression of a Confucian focus on harmony in the learning environment, but this effect was a trend and was not significant at $p < .05$. As per usual with predominantly null results, conclusions are difficult to draw from this work sample study. Possibly, group differences on these dimensions largely disappear in work samples because many students can compensate by displaying an approach to learning that is expected by their instructor and that is at odds with their preferred approach to learning. Possibly the relatively small group differences in self-perceptions regarding approach to learning translate into even smaller group differences in school assignments produced by the groups, differences that would then be difficult to detect. Any conclusions about group differences in essay writing from this work sample study would be speculative.

The framework may have utility in both cross-cultural and unicultural contexts. Possibly the framework could be used as a teaching tool for helping students understand approaches to learning which they have not yet mastered. Such a use may help students become more flexible learners able to express differing approaches to learning as the context demands.

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**APPENDIX A: SCALES PREVIOUSLY UNPUBLISHED OR MODIFIED FROM
PUBLISHED FORM AND USED IN STUDY 1**

Private Questioning Of Academic Content Scale

1. I think it's important for me to remain aware that textbooks are often wrong.
2. I think it's important for me to remain aware during class that instructors are often wrong.
3. When I sit in class, I think in critical ways about the truth of class content.
4. I tend to be somewhat skeptical in my thinking regarding the material taught in textbooks.

Public Questioning Of Class Content Scale

1. I've been known to publicly disagree with instructors.
2. In class, I like criticizing the theories being discussed.
3. I'm sometimes outspoken about my disagreements with what is taught.
4. I'm proud that I sometimes voice disagreement with ideas taught in class.

Sternberg Judicial Scale

1. When discussing or writing down ideas, I like criticizing others' ways of doing things.
2. When faced with opposing ideas, I like to decide which is the right way to do something.
3. I like to check and rate opposing points of view or conflicting ideas.
4. I like projects where I can study and rate different views or ideas.
5. I prefer tasks or problems where I can grade the design or methods of others.
6. When making a decision, I like to compare the opposing points of view.
7. I like situations where I can compare and rate different ways of doing things.
8. I enjoy work that involves analyzing, grading, or comparing things.

Considering Self-Generated Ideas Scale

1. I try to invent my own theories relating to the topics we study.
2. I try to generate my own answers to unresolved questions discussed in class.
3. I try to generate ideas for how research problems can be solved.
4. I try to generate ideas for solving unresolved problems discussed in class.
5. I try to think of alternative theories that improve on what instructors teach.

Desire for Structured tasks/roles (Modified Executive Thinking Style scale; Sternberg 1997)

1. I like school situations in which my role and the way I participate is clearly defined.
2. I prefer assignments in which I can solve problems by following specific rules and procedures.
3. I am careful to use the proper method to solve any homework problem.
4. When discussing or writing down ideas, I follow formal rules of presentation.
5. I prefer class assignments that have a clear structure and a set plan and goal.
6. Before starting a project, I review the instructions very carefully.
7. I like to follow clear rules and directions when doing a task.

Desire for Structured Knowledge (adapted from first factor in a factor analysis of epistemological style questionnaires; Wilkinson and Migotsky, 1994)

1. I prefer that teachers simply tell me the facts.
2. I would learn more in humanities classes if teachers would stick to the facts.
3. I prefer for the instructor to provide all the information I need to complete an assignment, so I don't have to do outside research.

Socratic Facilitators of Success as used in the Perceptions of the Learning Environment Section of the Questionnaire

1. Tendency to question material taught by authorities
2. Ability and tendency to carefully evaluate the merit of ideas and theories
3. Ability to be creative/to come up with many ideas
4. Ability and tendency to generate new theories

Confucian Facilitators of Success as used in the Perceptions of the Learning Environment Section of the Questionnaire

1. Ability and tendency to memorize facts and details
2. Tendency to carefully follow rules and procedures
3. Self-discipline to keep working at an important task even when the task becomes unpleasant

APPENDIX B: PREVIOUSLY UNPUBLISHED SCALES USED IN STUDY 2

External Sources of Information Rated for Trustworthiness

1. Living authority figures (e.g., parents, teachers, other people older than yourself)
2. Traditional beliefs (e.g., religions or other traditions)
3. Modern reference works (e.g., encyclopedias, dictionaries)

Internal Sources of Information Rated for Trustworthiness

1. Your own logic
2. Your own feelings/intuition
3. Your own judgment (combining thinking and feeling/intuition)

Epistemological Concern

1. I care about the kind of questions about finding truth already asked on this questionnaire

Consultation Items

1. When I decide what's true I like to talk to others first
2. When I decide what's true I like to decide on my own
3. When I decide what's true I don't feel a strong need to talk to others first

Collaboration

Please tell us approximately how many times you have met in a group (at least 3 people meeting together) in the last year to

study for an exam _____
complete a homework assignment _____
work on a major paper for a class _____

Consequences of Graduating and Failing University

School related events can have significant impacts on students' lives. For this question, we ask you to list the five most significant consequences that would result from the following events. Then, for each event, rate each consequence from most important (#1) to least important (#5).

Graduating from university.

Failing out of university.

For each event, have you rated the five consequences from most important (#1) to least important (#5)?

APPENDIX C: QUESTIONNAIRE FOR SUBJECT MATTER EXPERTS

We're studying Confucian and Socratic approaches to learning. In particular we're interested in similarities in and differences between how these two exemplars conceived of learning. Our expertise is in psychology rather than in the study of historical figures, so we're talking to experts to elicit their perceptions of how Confucius and Socrates conceived of learning. If you'd be willing, I'd like to ask you a some questions of how you perceive Confucius' and Socrates' conceptions of learning. Please rate each of the following sentences on a scale ranging from 3 parallel to the exemplar's conception of learning to -3 opposite to the exemplar's conception of learning.

	-3	-2	-1	0	1	2	3
	Opposite of His Ideas			Neutrally related to Him			Central to His Ideas
1. C: Student achievement mainly depends on how much effort the student puts out.							
Socrates					-3	-2	-1 0 1 2 3
Confucius					-3	-2	-1 0 1 2 3
2. C: Developing right habits of behavior is central to the learning task.							
Socrates					-3	-2	-1 0 1 2 3
Confucius					-3	-2	-1 0 1 2 3
3. S: Students are expected to openly question and express doubts about the material presented by the instructor.							
Socrates					-3	-2	-1 0 1 2 3
Confucius					-3	-2	-1 0 1 2 3
4. C: Students are clearly told by the teacher what is true and what is not true.							
Socrates					-3	-2	-1 0 1 2 3
Confucius					-3	-2	-1 0 1 2 3
5. S: Students are expected to devote much energy to generating, considering, and expressing their own hypotheses.							
Socrates					-3	-2	-1 0 1 2 3
Confucius					-3	-2	-1 0 1 2 3
6. C: Students are expected to absorb the material presented by the instructor.							
Socrates					-3	-2	-1 0 1 2 3
Confucius					-3	-2	-1 0 1 2 3
7. C: Great truths are sometimes best expressed with stories, metaphors or other poetic devices, leaving other people to figure out the meaning.							
Socrates					-3	-2	-1 0 1 2 3
Confucius					-3	-2	-1 0 1 2 3
8. S: Trying to distinguish truth from error is the essence of learning.							
Socrates					-3	-2	-1 0 1 2 3
Confucius					-3	-2	-1 0 1 2 3

9. C: The main goal of education is to foster virtue, which will subsequently be shown by right behavior in daily life.
- | | |
|-----------------|------------------|
| Socrates | -3 -2 -1 0 1 2 3 |
| Confucius | -3 -2 -1 0 1 2 3 |
10. S: A central task for each learner is to evaluate the validity of material being presented by others.
- | | |
|-----------------|------------------|
| Socrates | -3 -2 -1 0 1 2 3 |
| Confucius | -3 -2 -1 0 1 2 3 |
11. C: Students are expected to postpone questions and debate until they have learned the basics well.
- | | |
|-----------------|------------------|
| Socrates | -3 -2 -1 0 1 2 3 |
| Confucius | -3 -2 -1 0 1 2 3 |
12. C: Learning should be pragmatically focused on improving knowledge, skill, behavior, and vocational potential.
- | | |
|-----------------|------------------|
| Socrates | -3 -2 -1 0 1 2 3 |
| Confucius | -3 -2 -1 0 1 2 3 |
13. C: Students are expected to show an affinity for poetry (analogy, metaphor, imagery, and contradiction).
- | | |
|-----------------|------------------|
| Socrates | -3 -2 -1 0 1 2 3 |
| Confucius | -3 -2 -1 0 1 2 3 |
14. C: Students are expected to be motivated for learning by a desire for improved occupational opportunities.
- | | |
|-----------------|------------------|
| Socrates | -3 -2 -1 0 1 2 3 |
| Confucius | -3 -2 -1 0 1 2 3 |
15. S: Students are expected to be motivated for learning by a love for knowledge as an end in itself.
- | | |
|-----------------|------------------|
| Socrates | -3 -2 -1 0 1 2 3 |
| Confucius | -3 -2 -1 0 1 2 3 |
16. S: Students must provide their own structure for the learning task.
- | | |
|-----------------|------------------|
| Socrates | -3 -2 -1 0 1 2 3 |
| Confucius | -3 -2 -1 0 1 2 3 |
17. C: Respect for the teacher is expected from students
- | | |
|-----------------|------------------|
| Socrates | -3 -2 -1 0 1 2 3 |
| Confucius | -3 -2 -1 0 1 2 3 |
18. S: Student achievement mainly depends on the inherent ability of the student.
- | | |
|-----------------|------------------|
| Socrates | -3 -2 -1 0 1 2 3 |
| Confucius | -3 -2 -1 0 1 2 3 |
19. C: Students are expected to learn in groups.
- | | |
|-----------------|------------------|
| Socrates | -3 -2 -1 0 1 2 3 |
| Confucius | -3 -2 -1 0 1 2 3 |

20. S: Students are expected to learn as individuals.
- | | | | | | | | |
|-----------------|----|----|----|---|---|---|---|
| Socrates | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
| Confucius | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
21. S: A key step in teaching is implanting doubt in students
- | | | | | | | | |
|-----------------|----|----|----|---|---|---|---|
| Socrates | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
| Confucius | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
22. S: A correct belief with good reasons is much more valuable than a correct belief alone.
- | | | | | | | | |
|-----------------|----|----|----|---|---|---|---|
| Socrates | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
| Confucius | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
23. S: The main task of the learner is to search for truth regarding morality and virtue.
- | | | | | | | | |
|-----------------|----|----|----|---|---|---|---|
| Socrates | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
| Confucius | -3 | -2 | -1 | 0 | 1 | 2 | 3 |

Table 1
Approaches to Learning Among Three Cultural Groups With Ipsatized Variables

	Alpha European Can. / Asian born Chinese Can.	Group						Significant pairwise contrasts (Tukey HSD) ^a		
		European Canadian n = 145		Asian born		Linear p	Eta squared			
		M	SD	Chinese Canadian n = 53	Chinese Canadian n = 97					
<i>Socratic:</i>										
Private Questioning***	.76 / .74	2.12	.76	1.97	.68	1.69	.71	<.001	.066	1 > 3
Public Questioning***	.83 / .77	1.54	.96	1.33	.80	1.03	.72	<.001	.064	1 > 3
Rating Ideas***	.69 / .70	2.77	.55	2.57	.51	2.49	.57	<.001	.048	1 > 3
Generating Ideas***	.83 / .82	2.12	.83	1.89	.59	1.73	.77	<.001	.045	1 > 3
CCTDI***	.67 / .67	3.22	.49	3.01	.60	2.66	.48	<.001	.187	1 > 2 > 3
<i>Study Process Questionnaire:</i>										
Surface**	.64 / .57	2.80	.49	3.00	.42	2.95	.42	.010	.022	1 < 2, 3
Deep***	.74 / .68	2.52	.48	2.29	.48	2.27	.45	<.001	.049	1 > 2, 3
Achieving	.65 / .66	2.46	.49	2.47	.46	2.39	.47	.201	.006	
<i>Confucian</i>										
Desiring Task Structure	.66 / .64	3.13	.54	3.23	.55	3.16	.51	.571	.001	
Desiring Knowledge Structure***	.77 / .79	2.50	.94	2.71	.87	3.05	.84	<.001	.067	1 < 3

^aIn the pairwise contrast column, #1 refers to European Canadian, #2 to Canadian Born Chinese Canadian, and #3 to Asian Born Chinese Canadian.

*p < .05. **p < .01. ***p < .001

Table 2
Predictors of Success at University With Ipsatized Importance Ratings

	Group						Linear p	Eta squared	Significant pairwise contrasts (Tukey HSD) ^a
	European Canadian n = 145		Canadian born Chinese Canadian n = 53		Asian born Chinese Canadian n = 96				
	M	SD	M	SD	M	SD			
<i>Socratic Variables</i>									
Questioning***	1.36	1.04	1.70	0.85	2.05	1.06	<.001	.081	1 < 3
Evaluating *	2.40	0.84	2.57	0.76	2.61	0.87	.033	.016	
Generate Ideas*	2.14	0.84	2.31	0.83	2.36	0.78	.034	.016	
Generating Theories	2.13	0.97	2.23	1.00	2.28	0.94	.242	.005	
<i>Confucian Variables</i>									
Memorizing	3.36	0.79	3.12	0.89	3.14	0.76	.054	.013	
Following Rules***	2.88	0.93	2.85	0.72	2.51	0.92	.001	.035	1 > 3
Self Discipline**	3.18	0.74	3.02	0.66	2.88	0.84	.005	.027	1 > 3

^aIn the pairwise contrast column, #1 refers to European Canadian, #2 to Canadian Born Chinese Canadian, and #3 to Asian Born Chinese Canadian.

*p < .05. **p < .01. ***p < .001

Table 3
 Epistemological Orientations Among Three Cultural Groups With Ipsatized Ratings

	Alpha European Am. / Asian Born Chinese	Group						Significant pairwise contrasts (Tukey HSD) ^a		
		European Canadian n = 101		Canadian born Chinese Canadian n = 51		Asian born Chinese Canadian n = 92				
		M	SD	M	SD	M	SD			
<i>Socratic</i>										
Internal truth source***	.78 / .83	3.22	0.73	3.02	0.71	2.79	0.77	<.001	.057	1>3
Epistemic concern*		4.50	1.71	4.08	1.81	3.89	1.60	.027	.020	1>3
<i>Confucian</i>										
External truth source		3.08	0.86	3.06	0.86	3.14	0.86	.559	.001	
Living authorities		1.76	1.08	2.14	1.08	2.31	1.14	.001	.046	1<3
Traditional beliefs***		3.35	0.95	3.67	0.85	3.31	0.95	.836	.000	
Modern reference works		3.64	1.08	3.89	0.85	3.91	0.84	.085	.012	
Consultation	.78 / .68									
Collaboration		1.69	0.47	1.67	0.48	1.62	0.49	.133	.009	
Exam preparation		1.71	0.46	1.75	0.44	1.74	0.44	.978	.000	
Homework		1.45	0.50	1.22	0.42	1.50	0.50	.686	.002	
Papers		4.05	1.06	3.73	1.11	3.72	1.10	.064	.014	
Incremental Orientation	.95 / .95									

^aIn the pairwise contrast column, #1 refers to European Canadian, #2 to Canadian Born Chinese Canadian, and #3 to Asian Born Chinese Canadian.

*p < .05. **p < .01. ***p < .001

Table 4
 Open Ended Epistemological Orientation Data Among Three Cultural Groups

	Group						Significant pairwise contrasts (HSD) ^a
	European Canadian n = 102		Canadian born Chinese n = 51		Asian born Chinese Canadian n = 92		
	M	SD	M	SD	M	SD	
Socratic: Internal truth source							
Weighted*	1.71	1.92	1.65	1.85	1.14	1.66	.019
Unweighted	0.66	0.74	0.73	0.75	0.55	0.73	.004
Confucian: External truth source							
Weighted	3.96	1.47	3.94	1.43	3.94	1.69	.000
Unweighted	2.76	1.40	2.67	1.31	2.82	1.53	.000

^aIn the pairwise contrast column, #1 refers to European Canadian, #2 to Canadian Born Chinese Canadian, and #3 to Asian Born Chinese Canadian.

*p < .05. **p < .01. ***p < .001

Table 5
Open Ended Consequences of Graduating or Failing From University

	Group						Significant pairwise contrasts (HSD) ^a	
	European Canadian n = 103		Canadian born Chinese n = 51		Asian born Chinese n = 94			
	M	SD	M	SD	M	SD		
<i>Pragmatic Consequences For</i>								
Graduating**	2.36	1.10	2.53	1.08	2.81	1.09	.031	1 < 3
Graduating weighted*	6.47	3.12	7.59	2.92	7.56	3.10	.023	1 < 3
Failing*	2.31	1.10	2.57	0.94	2.67	1.16	.021	
Failing weighted**	5.86	2.71	6.67	2.99	7.12	3.39	.033	1 < 3
<i>Knowledge Related Consequences For</i>								
Graduating	0.37	0.58	0.37	0.60	0.31	0.51	.364	.003
Graduating weighted	1.18	1.86	1.00	1.64	0.78	1.45	.078	.013
Failing	0.14	0.34	0.14	0.40	0.14	0.35	.955	.000
Failing weighted	0.43	1.20	0.31	1.01	0.34	0.98	.574	.001

^aIn the pairwise contrast column, #1 refers to European Canadian, #2 to Canadian Born Chinese Canadian, and #3 to Asian Born Chinese Canadian.

*p < .05. **p < .01. ***p < .001

Table 6
 Vocabulary-Based Variables for Essays Written by Three Cultural Groups

	Group						Linear p	Eta squared	Significant pairwise contrasts (HSD) ^a
	European Canadian		Canadian born East Asian		Asian born Chinese Canadians				
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>			
<i>Socratic Variables</i>									
Intensifying words	0.217	0.222	0.214	0.196	0.273	0.300	.213	.009	
First person singular ("I")	0.828	1.249	0.549	0.754	0.831	1.108	.917	.000	
Disagreement words	0.006	0.033	0.014	0.049	0.011	0.046	.457	.003	
Insight words	1.617	0.744	1.577	0.753	1.664	1.085	.784	.000	
<i>Confucian Variables</i>									
Reference to Dictionary	0.007	0.049	0.046	0.140	0.018	0.067	.339	.005	1 < 2
Reference to Human Authorities	0.145	0.232	0.051	0.134	0.115	0.314	.390	.004	
Reference to Religion	0.012	0.055	0.029	0.136	0.009	0.067	.909	.000	
Agreement words	0.015	0.050	0.020	0.068	0.045	0.142	.064	.020	
Use of "Should"	0.276	0.306	0.309	0.371	0.396	0.462	.070	.019	
Use of Morality-Related Words	0.346	0.346	0.357	0.397	0.409	0.463	.375	.005	
Reference to Poetic Devices	0.012	0.048	0.009	0.037	0.038	0.146	.119	.014	

^aIn the pairwise contrast column, #1 refers to European Canadian, #2 to Canadian Born Chinese Canadian, and #3 to Asian Born Chinese Canadian.

Table 7
 Coded Variables for Essays Written by Three Cultural Groups

	Group				Linear p	Eta squared	Significant pairwise contrasts (HSD) *	
	European Canadian	Asian born	Asian born Chinese Canadians					
	n = 82 M SD	n = 35 M SD	n = 55 M SD	n = 55 M SD				
<i>Socratic Variables</i>								
Strength of Opinion	2.042	.409	2.061	.316	2.063	.400	.785	.000
Early Thesis Statement	0.890	.249	0.864	.280	0.927	.197	.457	.003
<i>Confucian Variables</i>								
Appeal to Outside Sources	0.157	.310	0.250	.388	0.127	.267	.649	.001
Presence of Moral Judgments	0.399	.331	0.421	.342	0.455	.417	.408	.004

*In the pairwise contrast column, #1 refers to European Canadian, #2 to Canadian Born Chinese Canadian, and #3 to Asian Born Chinese Canadian.