TAIWANESE-CHINESE IMMIGRANTS' CONCEPTIONS OF INTELLIGENCE

by

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ABSTRACT

The present study examined the factor structure underlying Taiwanese-Chinese immigrants' conceptions of intelligence and found seven major constructs that Taiwanese-Chinese immigrants believed that an intelligent individual frequently exhibits: *Interpersonal Intelligence*, *General Cognitive Ability*, *Self-Regulatory Ability*, *Intellectual Detachment*, *Intrapersonal Intelligence*, *Intellectual Self-Effacement* and *Exceptional Performance*. Five related but not identical constructs that Taiwanese-Chinese immigrants perceived important in characterizing an intelligent individual were: *Inter- & Intra-personal Intelligence*, *Effective Leadership*, *General Cognitive Ability*, *Intellectual Detachment* and *Exceptional Performance*. In addition, Taiwanese-Chinese immigrants' views of intelligence were only partially similar to those held by Taiwanese-Chinese nationals. While Taiwanese-Chinese immigrants continued to value interpersonal intelligence, intrapersonal intelligence and general cognitive ability, new views about intelligence were formed. Lastly, the association between conceptions of intelligence and acculturation was examined. Findings showed that Taiwanese-Chinese immigrants' conceptions of intelligence were related but weakly to acculturation.

Keywords: acculturation; immigrants; implicit theory; intelligence

Subject Terms: Chinese – British Columbia – Vancouver; Cognition and culture; Intellect; Taiwanese – British Columbia -- Vancouver

獻給所有參與此次研究的臺灣移民們

感謝你們無私的協助

This thesis is dedicated to

all the Taiwanese immigrants

who participated in this project.

Thank you for your generosity.

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CHAPTER 1: INTRODUCTION

Intelligence is one of the most well-researched theoretical constructs in psychology and education. Numerous theories of intelligence have been presented, but debates over the definition and measurement of intelligence have not abated (Furnham, 2001). One component of the research on intelligence involves the study of implicit (folk or everyday) theories, which are people's opinions about or definitions of intelligence (Sternberg, Conway, Ketron, & Bernstein, 1981). These private and informal views of intelligence are often revealed in overt behaviours and through self-report measures (Sternberg & Zhang, 1995). Not only are implicit theories of intelligence helpful in enriching our understanding about the ways individuals assess their own and others' intelligence, but they are also predictive of individuals' learning behaviours and outcomes (Jones, Slate, Blake, & Sloas, 1995; Kovach, Fleming, & Wilgosh, 2001; Leondari & Gialamas, 2002).

Various implicit views of intelligence have been reported (e.g., Berg & Sternberg, 1992; Dweck & Bempechat, 1983; Kurtz-Costes, McCall, Kinlaw, Wiesen, & Joyner, 2005; Pretzlik, Olsson, Nabuco, & Cruz, 2003). Although there are common threads in implicit views of intelligence across cultures (see e.g., "Intelligence and its measurement: A symposium," 1921; Sternberg & Berg, 1996), a large body of research suggests that people's conceptions of intelligence are heavily influenced by culture-related factors, such as societal practices, cultural values and philosophical traditions (Berry, 1974; Jacobs & Eccles, 1992; Raty & Snellman, 1992; Yang & Sternberg, 1997a). For instance,

while Westerners' conceptions of intelligence tend to place a greater emphasis on individual cognitive abilities, Africans' conceptions typically emphasize skills that facilitate and maintain harmonious and stable inter- and intra-group relations (Ruzgis & Grigorenko, 1994; Serpell, 1977; Super & Harkeness, 1983). Singaporean mothers' implicit theories of intelligence reflect distinctive Singaporean codes of behaviour characterized by obedience and self-motivation (Nevo & Khader, 1995). Moreover, Yang and Sternberg (1997a) reviewed ancient Chinese philosophical conceptions of intelligence and found they differed markedly from both ancient and contemporary Western views. While the Confucian tradition views intelligence as the achievement of character for benevolence and morality, the Taoist tradition emphasizes the importance of practicing the true greatness (i.e., *Tao*) and humility, which enables an intelligent individual to be perceptive and frees the individual from conventional standards of judgments.

While research has consistently demonstrated that sociocultural contexts and other culture-related factors influence people's views of intelligence (see e.g., Greenfield, 1997; Nisbitt, 2003), with increasing opportunities for intercultural contacts and our more ethnically diverse societies, little research has explored the relationship between acculturation and people's implicit theories of intelligence. Very few studies have surveyed and analyzed immigrants' implicit views of intelligence. As a consequence, little is known about constructs that characterize the implicit theories of intelligence held by immigrants.

Okagaki and Sternberg (1993) conducted one of the few studies exploring immigrants' implicit conceptions of intelligence. The researchers asked immigrant

parents from Cambodia, Mexico, the Philippines, and Vietnam as well as native-born Anglo-American and Mexican-American parents to rate a list of attributes with regard to their conceptions of an intelligent first grader. The study found that different ethnic groups had rather different ideas about what it means to be an intelligent first grader. While all the minority immigrant parents valued non-cognitive attributes (i.e., motivation, social skills, and practical school skills) over cognitive attributes (i.e., problem solving skills, verbal ability, and creative ability), Anglo-American parents gave higher ratings to cognitive abilities than to non-cognitive ones. Although the study has shown that immigrant parents of different ethnicities vary in their evaluations of the relative importance of attributes for an intelligent first grader, it is still unclear what important components underlie these immigrants' implicit views of intelligence and how important each component is in characterizing their implicit theories of intelligence. In addition, since the researchers only asked immigrant parents' conceptions of an intelligent first grader, the elicited responses did not necessarily represent their implicit views of an intelligent individual more generally. Furthermore, the research did not examine whether these immigrant parents' views of intelligence were different from individuals who share the same cultural upbringing but never experience the process of acculturation to a new cultural context. Thus, the current study examines both immigrants' views of intelligence in a general sense and compares views of intelligence of individuals who have and have not experienced the process of acculturation to a new cultural context.

There is reason to believe that immigrants' acculturation to a new society influences their implicit views of intelligence. When immigrants re-establish their lives in another cultural context, most undergo changes in their original ways of living, mostly

because they originate from cultures that are different from the one in which they currently reside. After a series of continuous and direct contacts with the new host culture, many aspects of immigrants' attitudes, behaviours, values and identities change to help them cope with information about and experiences of the new environment (Sam, 2006; Ryder, Alden, & Paulhus, 2000; Zadeh, Geva, & Rogers, 2008). This process is called psychological acculturation and is different from acculturation at the population level, which deals with changes in the social, economic and political structures as well as organizations of the groups involved in the acculturation process (Berry, 2006; Castro, 2003; Graves, 1967).

In recent decades, much of the research on psychological acculturation has been guided by two distinct models: the unidimensional and the bidimensional model. The unidimensional model describes acculturation as a process of moving along a single dimension continuously across time from the heritage cultural identity (i.e., the culture of upbringing) to the mainstream cultural identity (i.e., the predominant host culture) (Gordon, 1978). In this view, individuals are seen to gradually relinquish their heritage cultural identities and beliefs and eventually become assimilated into the mainstream host societies with complete adoption of the values and ideas of the mainstream host culture. A major critique of this model focuses on its assumption that the two cultural identities are presumed to be mutual exclusive, and that it does not view individuals as capable of holding "full-blown bicultural identities" (Kang, 2006, p. 670).

On the other hand, the bidimensional model proposes that acculturation is best explained when the heritage cultural identity and the mainstream cultural identity are seen as relatively independent of one another (Berry, 1992, 1997; Celano & Tyler, 1990;

Sayegh & Lasry, 1993). The bidimensional model proposes that immigrants, while adopting many values of the mainstream culture, do not simply give up values and practices acquired in their heritage culture. Rather, they are capable of holding multiple cultural identities and beliefs, each independent of the other and each independently varying in strength (Ryder et al., 2000). The model depicts two separate scales of heritage and mainstream cultural identities instead of a single continuum between two polar extremes (i.e., heritage or mainstream cultural identity). Thus, the model allows immigrants to be biculturated or hold bicultural identities.

Extant literature provides convincing support for the bidimensional model (see e.g., Bornstein & Cote, 2006; Ryder et al., 2000). However, it is unclear whether immigrants' implicit theories of intelligence also reflect such bidimensionality. In other words, the question of whether or not immigrants' implicit theories of intelligence may be characterized by values and beliefs about intelligence from both their heritage and mainstream cultures remains unanswered. The primary aim of the present study is to investigate immigrants' implicit theories of intelligence as well as the association between acculturation and these implicit conceptions of intelligence. The present study is informed by Yang and Sternberg's (1997b) study of the contemporary Taiwanese-Chinese conceptions of intelligence. Further, it builds on Yang and Sternberg's (1997b) work by examining the implicit theories of intelligence held by Taiwanese-Chinese immigrants in Canadian society.

1.1 Yang and Sternberg, 1997b

Yang and Sternberg (1997b) hypothesized that Taiwanese-Chinese conceptions of intelligence would differ from Western views of intelligence as a result of different

cultural-historical background of the Taiwanese. Initially, Taiwanese-Chinese nationals were asked to characterize an intelligent person, which resulted in a master list of attributes describing an ideal intelligent person. Among these attributes, many resembled the image of an intelligent person as characterized in traditional Chinese Confucianism and Taoism, and they differed remarkably from what was found with Western samples (see e.g., Sternberg et al., 1981). For instance, attributes such as "knows the importance and joy of seeking new knowledge," "is kind and compassionate; treats others with politeness, warmth, and understanding," and "brings about joy and harmony; uses his/her intelligence or wisdom to benefit self, others and the entire society" distinctively reflected the Confucian tradition that advocates benevolence, moral characterization and enthusiasm in the pursuit of knowledge. On the other hand, attributes such as "reacts swiftly and flexibly to sudden external changes," "knows when to assert him/herself and when to draw back," and "is able to discern the nature of life and has a deep understanding of some profound philosophy of life" mirrored the Taoism image of an intelligent person, which highlights the importance of modesty, freedom and practice of true knowledge without external interference and constraint.

The master list of attributes was composed into the Taiwanese-Chinese Views of Intelligence (TCVI) Questionnaire and was then rated by another two groups of participants in terms of either frequency (i.e., how frequently an intelligent person would exhibit each of the attributes) or importance (i.e., how important each of the attributes was to their conception of an intelligent person). Yang and Sternberg (1997b) determined that ratings of the relative frequency suggested which attributes were *observed* in an intelligent person whereas ratings of the relative importance indicated which attributes

were important in *defining* an intelligent person. After the responses were analyzed, five distinctive components emerged from frequency ratings: (1) general cognitive ability; (2) interpersonal intelligence; (3) intrapersonal intelligence; (4) intellectual self-promotion; and (5) intellectual self-effacement. Although the responses of importance ratings on the TCVI Questionnaire were less interpretable than those of frequency ratings, four related but different components were obtained: (1) interpersonal and intrapersonal intelligence; (2) intellectual enjoyment; (3) intellectual self-assertion; and (4) general cognitive ability. In summary, Yang and Sternberg (1997b) found cross-cultural differences in people's implicit theories of intelligence; individuals' conceptions of intelligence reflected the values and philosophical background of their cultures. However, one question that remains unanswered is whether these factors also underlie the implicit theories of intelligence of Taiwanese-Chinese immigrants living in Canada.

1.2 Taiwanese-Chinese Immigrants in Canada

Canada is one of the traditional countries of immigration (Noels & Berry, 2006). In 2005, Canada had about 6.1 million immigrants, with 18.9% of its population of 31 million not born in the country (International Organization for Migration, 2005; Noels & Berry, 2006). In recent years, about two-thirds of the annual flow of 250,000 to 300,000 immigrants have been from Asia (Noels & Berry, 2006). The concentration of immigrants varies by region and city. For instance, in British Columbia, 27.5% of the population are immigrants (BCStats, 2006). For the entire country, the net migration rate is 5.96 migrants per 1,000 people (Noels & Berry, 2006).

Since the late 1980s, many Taiwanese-Chinese people have immigrated to Canada, with many settling in the Lower Mainland cities of British Columbia such as

Vancouver, Burnaby, Richmond, Coquitlam and Surrey. By 1995, Taiwanese-Chinese immigrants represented 12% of total landings in British Columbia, and Taiwan has been among the top five source countries of immigrants to BC since 1989 (BCStats, 1995). The majority of the Taiwanese-Chinese came to BC under the Business Immigration Program, and more than half of those who landed between 1991 and 1995 were admitted under the Investor Class (BCStats, 1995). The majority of Taiwanese-Chinese immigrants is either first generation or 1.5 generation immigrants who have either grown up in Taiwan or havs completed at least some elementary or junior high school education in Taiwan prior to immigration. Most of them can at least speak if not read or write some Mandarin and Taiwanese. Some speak Hakka, a dialect spoken by those of Hakka heritage.

One possibility is that implicit theories of intelligence held by Taiwanese-Chinese immigrants in Canada are impacted by their experience of living in a Canadian culture where intelligence is perceived differently. For instance, the three major factors: (1) practical problem solving; (2) verbal ability; and (3) social competence identified in Sternberg et al. (1981) as well as the five types of intelligence: scientific, artistic, entrepreneurial, communicative and moral intelligence, as identified in Paulhus, Wehr, Harms, and Strasser (2002) differ from the components underlying Taiwanese-Chinese conceptions of intelligence identified in Yang and Sternberg (1997b). It is therefore reasonable to suspect that mainstream Canadian conceptions of intelligence may influence Taiwanese-Chinese immigrants' implicit theories of intelligence. Moreover, based on the bidimensional model of acculturation, it is reasonable to suspect a potential association between Taiwanese-Chinese immigrants' implicit conceptions of intelligence

and their identification with both their Taiwanese-Chinese heritage culture and mainstream Canadian culture. Taiwanese-Chinese immigrants may hold multiple views of intelligence that reflect beliefs of intelligence in both cultures.

1.3 The Present Study

The present study replicates Yang and Sternberg's (1997b) work with a sample of Taiwanese-Chinese immigrants living in Lower Mainland, British Columbia, Canada, to determine the underlying structure of their conceptions of intelligence and investigate whether similar patterns of views on intelligence exist when comparing such structure to the components obtained in Yang and Sternberg (1997b). The study also intends to examine the relationship between Taiwanese-Chinese immigrants' implicit conceptions of intelligence and their identification with Taiwanese-Chinese and Canadian cultures.

There are three major research questions in the present study:

1. How do Taiwanese-Chinese immigrants living in Canada define intelligence?
2. Are Taiwanese-Chinese immigrants' conceptions of intelligence different from those held by Taiwanese-Chinese nationals as reported in Yang and Sternberg (1997b)?
3. Is there an association between Taiwanese-Chinese immigrants' conceptions of intelligence and their identification with the mainstream Canadian culture and the heritage Taiwanese-Chinese culture?

Based on the research on implicit theories of intelligence and acculturation, it is hypothesized that Taiwanese-Chinese immigrants' conceptions of intelligence will only be partially similar to those held by Taiwanese-Chinese nationals as reported by Yang and Sternberg (1997b). Their implicit theories of intelligence are expected to reflect

bidimensionality. In other words, Taiwanese-Chinese immigrants' beliefs about intelligence are expected to reflect ideas from both their Taiwanese-Chinese heritage culture as well as Canadian mainstream culture. In addition, it is also predicted that Taiwanese-Chinese immigrants' implicit theories of intelligence will partially associate with their identification with mainstream Canadian culture and partially associate with their identification with heritage Taiwanese-Chinese culture.

Exploring how Taiwanese-Chinese immigrants think about intelligence serves both practical and theoretical purposes. Since personal theories of intelligence guide individuals' informal assessments of themselves and others in various life situations and predict learning behaviours and outcomes (Kovach, Wilgosh, & Stewin, 1999; Kovach et al., 2001; Leondari & Gialamas, 2002), this investigation may further our understanding of the ways immigrants learn and function in novel cultural contexts.

CHAPTER 2: LITERATURE REVIEW

This chapter reviews literature relevant to the present study and brings together the theoretical and empirical accounts underlying the study questions as well as methodology. It is divided into two parts: (1) implicit theories of intelligence; and (2) acculturation. Part 1 is a comprehensive review of implicit theories of intelligence that highlights two major lines of inquiry within the literature of implicit theories of intelligence– the function line and the content line. Different approaches to studying the content of implicit theories of intelligence are also examined. Following that, cross-cultural research regarding the content line is presented to delineate how sociocultural contexts affect people's implicit theories of intelligence and how people of different cultures view intelligence. In particular, Taiwanese-Chinese views of intelligence are discussed to set the stage for the current study. In part two, research and theories of acculturation are reviewed. Two major models of acculturation: the unidimensional and the bidimensional models are examined. It is imperative to comment on these issues to justify the assumptions and the methodology of the current study.

2.1 Implicit Theories of Intelligence

Historically, the majority of research has been devoted to the formulation of explicit theories of intelligence, which are "constructions of psychologists or other scientists that are based on or at least tested on data collected from people performing tasks presumed to measure intelligent functioning" (Sternberg et al., 1981, p. 37). Investigators of explicit theories do not need to agree with each other on the proposed

structures or components of intelligence as long as these structures and components are supported by empirical observations of performance on intelligent functioning tasks (Sternberg, 1985b). Some examples of explicit theories of intelligence include classical theories, such as Spearman's (1927) two-factor theory and Thurston's (1938) theory of primary mental abilities, and more recently, Carroll's (1993) hierarchical model of intelligence and Sternberg's (1985a, 1990) successful intelligence. Research on explicit theories has set the foundation for cognitive assessments as well as scientific theories of individual difference in cognitive performance. However, explicit theories alone do not capture the complexity in people's beliefs about intelligence or intelligent behaviours, nor can they specify the role of personal values in individuals' daily activities and interactions. Given that one of psychology's key missions is to understand how people think and how personal definitions of psychological constructs guide individuals' judgments and actions, investigations of intelligence have been expanded to include implicit (folk or everyday) theories, which are opinions about or definitions of intelligence that exist within people's minds (Sternberg, 1985b).

Implicit theories are simply people's conceptions or beliefs about intelligence, and these theories are usually formed through people's everyday interactions with their surroundings (Grigorenko & Lockery, 2002). Better understandings of implicit theories should help enrich our current understanding of intelligence in both practical and theoretical terms. It is useful in: (1) understanding the common cultural views that have dominated thinking about intelligence and intelligent behaviours (Sternberg, 2000b); (2) expanding understandings of what and how personal definitions of intelligence guide individuals' informal evaluations of their own and others' intelligence in various

situations, such as job interviews or voting preferences (Berg & Sternberg, 1992); and (3) predicting individuals' learning behaviours and outcomes (Jones, Slate, Blake, & Sloas, 1995; Kovach et al., 1999; Kovach et al., 2001; Leondari & Gialamas, 2002). On the macro scale of theory formulation, implicit theories may help in devising and revising of explicit theories by providing a conceptual framework and suggesting possible modification (Sternberg, 2000b).

Within the literature on implicit theories of intelligence, there are two major paths of inquiry. One line focuses exclusively on the *function* of implicit theories by investigating their motivational role in learning, particularly in predicting learning behaviours and outcomes (Dweck, Chiu, & Hong, 1995; Jones et al., 1995; Kovach et al., 1999; Kovach et al., 2001; Leondari & Gialamas, 2002). The other line focuses predominately on the *content* of implicit theories by reporting views of intelligence expressed by various ethnic groups or by revealing the underlying constructs within people's beliefs about intelligence (Berg & Sternberg, 1992; Lim, Plucker, & Im, 2002; Nevo & Khader, 1995; Swami, et al., 2008).

2.1.1 Function of Implicit Theories of Intelligence

The functional line of research on implicit theories of intelligence typically revolves around Dweck and her colleagues' work (e.g., Dweck, 1986; Dweck & Elliott, 1983; Dweck & Leggett, 1988). Dweck and her colleagues conducted extensive research on implicit theories of intelligence to understand how meanings emerged from people's fundamental assumptions and perceptions about themselves and the social world change their general cognitive structures (Molden & Dweck, 2006). According to Dweck (1986), there are two major types of implicit theories of intelligence, namely the entity theory

(i.e., the belief that intelligence or competence is a fixed, uncontrollable and non-malleable entity) and the incremental theory (i.e., the belief that intelligence or competence is an increasable, controllable and malleable quality). These two different sets of views guide individuals towards the adoption of different goals and then trigger different behavioural patterns.

The entity theorists perceive intelligence as a global and stable trait judged solely on performance and orient towards a performance goal, that is, to gain positive judgments and avoid negative judgments of competence (Dweck, 1986). Entity theorists are more likely to be concerned with the observable outcomes of their performances (i.e., success or failure) and see effort as having little impact because ability, not effort, is deemed the key factor in performance (Dweck & Elliott, 1983). On the contrary, incremental theorists, who perceive intelligence as a repertoire of improvable skills, tend to adopt a learning goal. The primary intent of the learning goal is to understand the materials and ultimately to increase knowledge and competence. Thus, incremental theorists are more likely to focus on effort as a means of utilizing and increasing their abilities (Dweck, 1986). These two theories of intelligence represent the opposing ends of a continuum, and "individuals vary in the extent to which they endorse one as opposed to the other" (Slate, Jones, & Charlesworth, 1990, p. 25).

Several studies have been conducted to test Dweck's theory (e.g., Slate et al., 1990). Since incremental theorists would value effort more in improving task performance than entity theorists would, developing and applying good study strategies or habits would provide more incentive for incremental theorists than entity theorists. Slate et al. (1990) observed a positive correlation between incremental view and self-

reported study skills; students who held incremental views were more likely to have better study skills than those with an entity view. A positive association between incremental view and self-report of study skills was also found by Jones, Slate, Mahan, et al. (1993). Although these findings supported the relationship between students' implicit theories of intelligence and their self-reported study habits and learning strategies, a major weakness is that they excluded an examination of whether people's implicit theories of intelligence predict their goal orientations. In other words, instead of examining the full extent of Dweck's propositions that implicit theories of intelligence would first orient individuals to adopt different goals, which consequently predict individual preferences in study habits, these studies jumped straight into associating implicit theories of intelligence with learning strategies without specifying the role of goal orientation in the process. Therefore, it becomes impossible to determine whether Dweck's theory holds true.

More recently, studies have been carried out to test whether implicit theories of intelligence predict goal orientations, but findings are inconsistent. While some studies found support for the antecedent role of implicit theories of intelligence in predicting goal orientation (Ablard, 2002; Leondari & Gialamas, 2002; Stipek & Grlinski, 1996), others did not (Kennett & Keefer, 2006; Payne, Youngcourt, & Beaubien, 2007; VandeWalle, 1997). Some studies further suggest that other constructs, such as personal epistemological beliefs, may actually be more predictive of goal orientation (e.g., Braten & Stromoso, 2004, 2005). Dupeyrat and Marine (2004) were only able to confirm the relationship between goal orientation and learning behaviours but not the relationship between implicit theories of intelligence and goal orientation. Their findings suggested

that people's implicit theories of intelligence do not predict goal orientation and cognitive engagement in learning. One possible explanation Duperyat and Marine provided was that individuals may have "more complex conceptions of intelligence and believe that intelligence is multidimensional" (p. 56). It is likely that people's implicit theories of intelligence are more variable than a simple dichotomous categorization as Dweck originally postulated. Therefore, it is important to turn to the content research of implicit theories of intelligence, which may provide us some insight into the structure of implicit theories of intelligence.

2.1.2 Content of Implicit Theories of Intelligence

There is no lack of definitions of intelligence; neither is there one definite way to describe intelligence or intelligent behaviours. There are at least three approaches to studying implicit theories of intelligence: classical componential view, prototype view, and exemplar view.

The classical componential view attempts to specify the defining attributes of intelligence (i.e., the individually necessary and jointly sufficient conditions for defining intelligence as a concept). Much effort has been made to identify the defining attributes of intelligence, and perhaps the best-known study is the 1921 *Journal of Educational Psychology* symposium where experts were asked to contribute on what they conceived intelligence to be. The elicited responses varied from one expert to another: "the ability for abstract thinking" (Terman); "the capacity of good responses from truth or facts" (Throndike); "the ability to adjust oneself to environment" (Colvin); "the ability to adjust oneself to novel situations" (Pintner); "the biological receptivity to stimuli and the consistency of response organization" (Peterson); to "the capacity to learn or to profit by

experience" (Dearborn). As a follow up of the 1921 symposium, Sternberg and Berg (1986) also invited a panel of psychologists to express their views about intelligence. While learning and adaptation to environment retained their importance, new emphases, such as metacognition and the role of cultural context, were added. More recently, Lund (1994) interviewed experts and found that intelligence could be seen as "something to do with telling a story, with how the mind makes sense of things" (p. 68); "some combination of good command of language or verbal ability, math abilities and creative abilities" (p.74); a "biologically determined potential for problem-solving" (p. 74); or a "highly culturally-bound concept, with myriad components and aspects, including 'moral, cultural, and genetic considerations' to be addressed" (p.78). The classical componential approach typically results in a long list of features that all seem important and undisputable. Moreover, even if a consensual component seems to emerge, the problem then becomes the decomposition and analysis of the component itself. For instance, from both the 1921 and 1986 symposia, the importance of learning and adaptation to environment was highlighted. However, since these concepts were already quite elusive, the understanding of these concepts became a challenge itself and therefore complicated the task of identifying the defining attributes of intelligence.

Another approach to studying implicit theories of intelligence was proposed by Neisser (1979) who claimed that intelligence is not a unitary, internal quality but a resemblance. Building on Rosch's (1975) work, Neisser argued that intelligence is best studied through the prototype of an intelligent person because no particular attribute is necessary and sufficient to describe a person as intelligent. In other words, there are no defining attributes of the word *intelligence*. However, there are typical features of an

intelligent person, and a person's intelligence is "just the degree to which one resembles a prototypically intelligent person" (Neisser, 1979, p. 217). An intelligent individual would be someone who demonstrates attributes of being intelligent, and the more attributes displayed by a person, the more intelligent the person is.

Studies with the prototype approach typically ask lay judges to define what they mean by an intelligent individual, and among these studies, particular mention should be made of those carried out by R.J. Sternberg and his colleagues. Sternberg et al. (1981) asked lay adults to first list behaviours that characterized either "intelligence," "academic intelligence," everyday intelligence," or "unintelligence" and then rate themselves on each kind of intelligence. The list produced was later rated by another group of experts and lay adults to determine whether experts and laypersons define an intelligent person similarly. The study found that both groups used the same factors: problem solving, verbal ability, and social competence. Similar factors were also obtained in Sternberg's (1985b) survey of college students' conceptions of intelligence with the same method. Berg and Sternberg (1992) narrowed the sampling population and examined only lay adults' conceptions of intelligence. Three major dimensions of intelligence were identified: dealing with novelty, everyday competence, and verbal competence.

An alternative to the prototype approach is proposed by researchers who see the prototype approach as inadequate in reflecting that there are multiple ways to be intelligent (e.g., Paulhus et al., 2002). These researchers argue that our minds usually store various representations or exemplars of intelligent individuals with whom we have had experience, and intelligence is assessed in relation to these exemplars (Paulhus et al, 2002; Sternberg, 2000a). For instance, Paulhus et al. (2002) asked North American

college students to name an ideal example of an intelligent famous person; the examples provided most were Einstein, U.S. President, Da Vinci, Isaac Newton, Shakespeare, Mozart, Oprah Winfrey and Stephen Hawking. These popular exemplars represented five types of intelligence, namely scientific (e.g., Einstein), artistic (e.g., Mozart), entrepreneurial (e.g., Gates), communicative (e.g., U.S. President) and moral (e.g., Gandhi). In addition, these popular exemplars were consistent across 16 years, which showed "substantial consensus on the implicit definition of intelligence among educated North Americans" (Paulhus et al., 2002, p. 1058).

Despite the various approaches to discovering the content of implicit theories of intelligence, one common theme emerged is that people from different cultures hold different attitudes and beliefs towards intellectual competence, depending on their sociocultural values and beliefs (Cianociolo & Sternberg, 2004; Fan & Karnilowicz, 1997; Rogoff & Chavajay, 1995; Swami et al., 2008; Yang & Sternberg, 1997b). For instance, Swami et al. (2008) investigated lay beliefs about intelligence across three cultures: Malaysian, British and American, and found that Malaysians, whose culture associates intelligence more strongly with practical and social aspects, were more likely than their British and American counterparts to view intelligence as having greater practicality in everyday settings. Nevo and Khader (1995) observed four underlying factors in Singaporean mothers' implicit theories of intelligence: cognitive and academic ability; disciplined conduct; social competence; and unintelligent behaviours. Although some of these factors have been reported previously (e.g., cognitive and academic ability and social competence), disciplined conduct was unique to Singaporeans in that it

reflected "kiasu", a Singaporean code of behaviour characterized by "cautiousness, politeness, obedience and strong motivation" (p. 515).

Even though Western intelligence theories and research may have influenced views of intelligence in non-Western cultures, ideas of intelligence in non-Western cultures remain grounded in their own cultural practices and philosophies (Booth, 2003; Das, 1994; Grigorenko et al., 2001; Lim et al., 2002; Nevo & Khader, 1995; Sato, Namiki, Ando, & Hatano, 2004; Yang & Sternberg, 1997a). Many non-Western cultures have incorporated aspects of social interaction along with cognitive abilities in their definitions of intelligence (Nevo & Khader, 1995; Raty & Snellman, 1992). In Grigorenko et al.'s (2001) recent investigation of Luo's conceptions of intelligence, it was found that although the Luo's conceptions of intelligence somewhat resembled Western conceptions of intelligence, the Luos placed more emphasis on "practical and community oriented social adaptive skills" (p. 376) because such skills were highly valued in the community. Booth (2003), after examining the Swazi "*hlakaniphile*" (intelligent) with a historical and anthropological approach, found that *hlakaniphile* began to incorporate intellectual competence, which is considered a more Western notion. However, *hlakaniphile* throughout Swazi history continued to emphasize social skill as an important element of intelligence because the development of social knowledge has been the primary goal in the Swazi culture.

People's conceptions of intelligence often reflect the philosophical traditions in their cultures. Yang and Sternberg (1997b) investigated Taiwanese-Chinese people's conceptions of intelligence by asking local Taiwanese-Chinese to characterize an intelligent person. Amongst the 120 attributes identified, many resembled the image of an

intelligent person in the Confucian and Taoist traditions. Motivation and effort as emphasized in Confucianism were considered important elements constituting intelligence. The findings showed that for Taiwanese-Chinese, intelligence is a complex construct involving a broad spectrum of behaviours grounded in their philosophical traditions. Similar emphasis on interpersonal skill and effort is also evident in other Asian countries, such as Japan and Korea. Of the five factors underlying Japanese implicit theories of intelligence, two were specifically about social skills: positive social competence (e.g., "effective speaker," "sociable," "leadership," "good at getting along"), and receptive social competence (e.g., "can take other's point of view," "sympathetic," "good listener") (Azuma & Kashiwagi, as cited in Holloway, 1988). In addition, the strong cultural belief in effort is an impetus for Japanese to value "the supreme importance of effort as a determinant of intellectual achievement" (Sato et al., 2004, p. 318). Korean cultural emphasis on social responsibility has been reflected in Korean conceptions of intelligence; Koreans tend to emphasize social skills more than Americans or other Asian samples do (Lim et al., 2002).

Based on the aforementioned cross-cultural findings, it is clear that people's implicit theories of intelligence mirror their societal values as well as practices and important philosophical traditions of a given culture. Therefore, it becomes necessary to examine Taiwanese-Chinese beliefs about what constitutes intelligence, so we can better understand Taiwanese-Chinese immigrants' conceptions of intelligence.

2.1.3 Taiwanese-Chinese Conceptions of Intelligence

Taiwanese-Chinese cultural views of intelligence can be examined from two aspects: the Chinese language and the prominent classical schools of thought. Chinese

language, distinctive in its structure and orthographies, is closely intertwined with Chinese culture (Pickle, 2001). It is therefore crucial to examine how ideas about intelligence are embedded within the language itself. In addition, it is necessary to review how intelligence or an intelligent individual is portrayed within the two prominent schools of thought: Confucianism and Taoism, which have influenced contemporary Taiwanese-Chinese thinking and behaviour and played an important role in contemporary Taiwanese-Chinese views of intelligence.

2.1.3.1 Intelligence in the Chinese Language

In Chinese, an intelligent individual is often labelled as *cong-ming* (聰明). According to the great Han etymological dictionary *Shuowen Jiezi* (說文解字), the first character *cong* (聰) is a phono-semantic compound character, which indicates that the character is combined by one sub-character with approximately the correct pronunciation (i.e., 悤, cong) and the other character supplied an element of meaning (i.e., 耳, er). The sub-character *er* gives meaning to the character *cong* and implies acute listening that enables individuals to receive and evaluate the information heard (*Shuowen*, 7762). On the other hand, the second character *ming* (明) is an ideogrammic compound character, which means that *ming* is formed by two or more ideographic sub-characters (日 and 月) to create a new meaning for the character *ming*. With the purpose to describe the sun (日, *ri*) and the moon (月, yue), *ming* literally means "to be bright." *Ming* also symbolizes the clarity of eyesight, which permits individuals to detect objects with the aid of sunlight and moonlight without difficulties (Chan, 1996). Beyond its literal meaning of brightness, *ming* in a number of classical references (e.g., *Shujing* 書經 and *Shijing* 詩經) means

intelligence and the ability to understand, perceive and appreciate. For instance, the *Shujing* explicitly describes *ming* as the enlightened intelligence and prescribes it as one of the two necessary attributes of a virtuous ruler whereas the *Shinjing* attributes *ming* to heaven for its ability to observe the conducts of people clearly (Raphals, 1992).

In sum, *cong ming* reveals the two important elements in being intelligent: (1) receiving and evaluating information heard carefully; and (2) carrying out in-depth observations of one's surrounding and phenomenon to achieve maximum understanding and appreciation.

2.1.3.2 Intelligence in Confucianism and Taoism

Confucianism and Taoism have long been recognized as the most influential classical Chinese wisdom (Raphals, 1992; Yang & Sternberg, 1997a; Yip, 2004). These two traditions have exerted a tremendous amount of impact on the whole of Chinese society by guiding Chinese people's thinking and behaviours in everyday life (Tsai, 2006; Yip, 2004). Since Taiwanese-Chinese culture has maintained a strong emphasis on the traditional Chinese culture, both traditions have also influenced how Taiwanese-Chinese people think about intelligence and intelligent behaviour.

Confucianism is a sophisticated set of moral teaching and ethical beliefs developed from the teachings of Confucius based on ancient Chinese traditions. The main sources of citations and references of Confucianism come from the "Four Books," including *The Analects*, *Mencius*, *Great Learning*, and *The Doctrine of the Mean*, which later became the basic textbooks for Chinese civil-service examinations. As the dominant social and political philosophy, Confucianism is considered as the official system of thought and has determined not only the content but also the form of education (Raphals,

1992). There are four cardinal virtues espoused in Confucianism: (1) *ren* (仁: benevolence, humanity); (2) *yi* (義: righteous, morality); (3) *li* (禮: the rules of appropriate conducts in various situations); and (4) *zhi* (知: wisdom, intelligence, or knowledge). Among these four virtues, the ideas of intelligence associate the most with *zhi* and *ren*.

Zhi in Confucianism consists of (1) the mastery of *li*; (2) the acquisition and practice of *ren* and *yi*; and (3) the ability to recognize and understand when to act appropriately (Raphals, 1992). To achieve *zhi*, an individual not only has to recognize and understand *ren*, *yi*, and *li* but also practice these virtues in daily life. Moreover, several passages in *The Analects* have suggested how individuals with *zhi* should be: (1) they can appreciate their and others' abilities; (2) they have intellectual understanding and knowledge; and (3) they have mastered and committed themselves to virtuous beliefs and acts (Van Norden, 2003). It is important to note that *zhi* is not only a cognitive process but "an intuitive process developed though a continuous process of self cultivation" (Park & Chesla, 2007, p.302). Two major factors are involved in the cultivation process of *zhi*: innate ability and effort. Recognizing that some individuals are born with exceptional abilities, Confucius stated:

> Those who are born with knowledge are the highest. Next come those who attain knowledge through study. Next again come those who turn to study after having been vexed by difficulties. The common people, in so far as they make no effort to study even after having been vexed by difficulties, are the lowest. (*The Analects*, 16.9)

Because of such individual differences in ability, Confucius further commented: "You can tell those who are above average about the best, but not those who are below average." (*The Analects*, 6.21)

However, it is important to note that innate ability is a less crucial factor compared to effort (Tu, 1985). Pre-existing differences in abilities can eventually be overcome by an enthusiastic investment of effort in learning and studying:

> If one man succeeds by one effort, I will use a hundred efforts. If another man succeeds by ten efforts, I will use a thousand efforts. If one really follows this course, through stupid, s/he will surely become intelligent. (*The Doctrine of the Mean*, Chapter 20)

Even Confucius described himself as "not those who born with knowledge", but the type who "appreciates classical culture and knowledge and then works industriously and progressively to achieve them" (*The Analects*, 7.20).

However important *zhi* is, it is a hierarchically inferior complement to *ren* (Raphals, 1992; Tu, 1985; Wang, 1968). The highest level of *zhi* is to recognize the primacy of *ren* over *zhi* (*Mencius*, 7.1.21). According to *The Analects* (15.33), when a man with *zhi* but not *ren* strives to attain knowledge or a position, he eventually loses whatever he has attained because of his lack of *ren*. The virtue of *ren* is therefore considered the key feature in characterizing an intelligent person in Confucianism. *Ren* refers to affection and concern for the well-being of others (Park & Chesla, 2007), and its basic principle is to love and respect people:

> ... a benevolent man helps others to take their stand in so far as he himself wishes to take his stand, and gets others there in so far as he himself wishes to get there. The ability to take as analogy what is near at hand can be called the method of benevolence. (*The Analects*, 6.30)

Ren is also the defining quality of human beings who undergo character cultivation to become *junzi* (君子), an ideal gentleman who has cultivated his character to possess benevolence and wisdom and behaved in accordance with rightness.

In sum, the Confucian tradition conceptualizes an intelligent person as one who dedicates oneself to character cultivation for the embodiment of benevolence and morality. Well aware of the codes of conduct, the person acts appropriately according to the context. The person also understands the need of learning and studying and enjoys such process with great enthusiasm.

On the other hand, Taoism was developed by Laozi and Zhuangzi in about 500 BC, and their writings have laid the foundation of the later development in philosophical Taoism as well as the Tao religion (Yip, 2004). Repudiating Confucian ethics and rituals, Taoism replaces the Confucian vision of humanity with a vision of nature and argues that *real* knowledge cannot be articulated and described by "the arbitrary and restrictive divisions of language" (Raphals, 1992, p. 71). Language categorizes our thinking and consequently distorts our perceptions to convey the reality adequately. In Taoism, the real knowledge is known as the *tao* (道, great knowledge or meta-knowledge) and is to contrast with the "small knowledge" of Confucianism and other schools of thought, such as Mohist.

One reference of Taoism, *Tao Te Ching* (道德經) by Laozi, distinguishes between two different forms of intelligence: (1) the conventional Confucian knowledge *zhi*, which associated with learning, and (2) the great knowledge *tao*, which is a natural perception without hindrance of language (Raphals, 1992). The conventional knowledge and intelligence *zhi* is associated with deceit and hypocrisy:

> When the Great Way is rejected, it is then that we have the virtues of humanity and righteousness. When knowledge and wisdom appear, it is then that there is great hypocrisy. (*Tao Te Ching*, 18)

Laozi further argued for a complete elimination of conventional knowledge, attitudes or virtues advocated by Confucianism and Mohist:

> Eliminate sageliness, throw away knowledge,
> And the people will benefit a hundredfold.
> Eliminate humanity, throw away righteousness,
> And the people will return to filial piety and compassion.
> Eliminate craftiness, throw away profit,
> Then we will have no robbers and thieves. (*Tao Te Ching*, 19)

To compare *tao* with the conventional understanding of knowledge and intelligence, Laozi redefined the conventional knowledge and contrasted it with unconventional stupidity:

> Mine is the mind of a fool- ignorant and stupid!
> The common people see things clearly;
> I alone am in the dark.
> The common people discriminate and make fine distinctions;
> I alone am muddled and confused. (*Tao Te Ching*, 20)

In this passage, "stupidity" is preferred over "knowledge" because the conventional knowledge and intelligence only result in confusion in reality, and stupidity is only considered "stupid" in the discussion of conventional knowledge (Raphals, 1992). Therefore, Taoism meta-knowledge urges individuals to refrain from the practices that result in conventional knowledge by discernment (明, *ming*) and nonbeing (無, *wu*).

Ming implies both self-knowledge and the knowledge of phenomenal changes (Raphals, 1992). In a statement in *Tao Te Ching*, Laozi described the importance of *ming*: "To understand others is to be knowledgeable; to understand yourself is to be wise" (33). In addition, a truly wise or intelligent person is expected to understand not only himself but also the consistency in phenomenal changes. For example, *Tao Te Ching* states:

> All things alike go through their processes of activity, and then we see them return to their original state. When things have displayed their luxuriant growth, we see each of them return to its root. This returning to their root is what we call

> the state of stillness; and that stillness may be called a reporting that they have fulfilled their appointed end. The report of that fulfilment is the regular, unchanging rule. To know that unchanging rule is to be intelligent; not to know it leads to wild movements and evil issues (16).

Because everything in the universe is carefully balanced and follows a cycle of changes that is beyond the comprehension of conventional rules, it is therefore crucial for individuals to constantly question themselves if they can discern the path along which everything moves and contemplate how they can live in accordance with the *tao* (Yang & Sternberg, 1997a). Individuals need to respond to the ever-changing context in accordance with *tao* with heightened perception and responsiveness.

Wu implies nothingness and nonbeing. True followers of *wu* understand that since *tao* guides the universe so rhythmically and automatically without labour, they will then practice their understanding of *tao* in life to help them "glide though life without exertion and mishaps" (Wang, 1968, p.70). For instance, Laozi observed that:

> The good traveller leaves no track behind;
> The good speaker speaks without blemish or flaw;
> The good counter doesn't use tallies or chips;
> The good closer of doors does so without bolt or lock, and yet the door cannot be opened;
> The good tier of knots ties without rope or cord, yet his knots cannot be undone.
> (*Tao Te Ching*, 27)

The effortless manner displayed by the skilful traveller, speaker, and counter demonstrates the meaning of *wu* (i.e., the calmness and steadiness in one's demeanour when one truly understands and practices *tao* in everyday life).

In sum, Taoism sees an intelligent person as one who knows and practices *tao*, the true greatness and the real knowledge. With insightful knowledge about oneself as well as the environment where one situates, one is perceptive and responsive to immediate

changes in circumstances. This keen awareness allows one to merge oneself with the *tao* spontaneously and behave humbly even though one has the ability.

The discussion above reviewed Taiwanese-Chinese views of intelligence, which can play a significant role in Taiwanese-Chinese immigrants' conceptions of intelligence. However, Taiwanese-Chinese immigrants' conceptions of intelligence can also be impacted by their experience of living in a new cultural context. It is thus important to understand the process of acculturation and the potential changes in behaviour and thinking this process entails.

2.2 Acculturation

Immigration and acculturation are not new concepts; both activities have been happening for millennia. In 2005, the International Organization of Migration (IOM) estimated that about 191 million people are living outside their place of birth, that is, approximately one in every thirty-five people in the world is a migrant (i.e., a collective term for immigrants, sojourners, and refugees). Most migrants experience changes in their original ways of living, largely because they originate from societies that are culturally different from the one where they currently reside. The meeting of cultures and resulting changes is known as acculturation (Sam & Berry, 2006). With the expanding number of migrants and our more ethnically diverse societies, studying of migrants and acculturation has become an international concern. Since the focus of the present study is on immigrants, this review will only present studies and theories relevant to the topic of immigrants and acculturation.

2.2.1 Definition and Issues of Acculturation

Although acculturation is a common term used in most discussions of immigrants, its meaning and operationalization remain elusive (Sam, 2006). A clarification of its definition is therefore essential. The classical definition of acculturation proposed by Redfield, Linton, and Herskovits (1936) was that "acculturation comprehends those phenomena, which result when groups of individuals having different cultures come into continuous first-hand contact with subsequent changes in the original culture patterns of either or both groups" (p. 149). This definition uses the broad term *acculturation* for both the process and the changes after "continuous first-hand contact," and the changes can occur in both groups. Acculturation is the product of contact between two cultural groups. The Social Sciences Research Council (SSRC) later presented a more specific conceptualization in 1954:

> Acculturation may be defined as cultural change that is initiated by the conjunction of two or more autonomous cultural systems. Acculturative change may be the consequence of direct cultural transmission: it may be derived from non-cultural causes, such as ecological or demographic modifications induced by an impinging culture; it may be *delayed*, as with internal adjustments following upon the acceptance of alien traits or patterns; or it may be a *reactive* adaptation of traditional modes of life. Its dynamics can be seen as the *selective adaptation of value systems*, the process of integration and differentiation, the generation of developmental sequences, and the operation of role determinants and personality factors (p. 974, with added emphasis).

A few more features were added in this definition. Acculturation is seen as the changes that occur because of inter-culture contacts and intercultural exchanges. The changes can be "delayed," "reactive" and/or "selective."

For early researchers of acculturation, *acculturation* and *assimilation* were often used synonymously (see e.g., Simons, 1901). Such synonymous use of terms has been questioned by contemporary acculturation researchers who argue for the necessity in

distinguishing the term *acculturation* from the widely used but often confusing terms such as assimilation, enculturation and cultural change (see e.g., Berry, 1997; Berry, Poortinga, Segall, & Dasen, 2002; Castro, 2003; Sam, 2006).

First, *acculturation* is different from *enculturation*. While *enculturation* refers to the process by which developing individuals acquire the culture (e.g., language, norms) of their primary group (Berry et al., 2002), *acculturation* refers to "second-culture acquisition through contact with different cultures" (Castro, 2003, p. 8). Second, *acculturation* is not *assimilation*. *Assimilation* is only one potential outcome of acculturation, whereas *acculturation* encompasses other possible alternative courses and goals (Berry, 1997). Finally, *acculturation* differs from culture change. *Acculturation*, as one aspect of the broader concept of culture change, refers to the process that leads to changes at the population level with the source of change being intercultural contact. Culture change on the contrary describes the process that leads to changes at the population level when the source of change is internal events (i.e., within the culture itself), such as invention, discovery and innovation (Castro, 2003).

A further distinction was made by Graves (1967) concerning the level of analysis involved in the research on acculturation. Graves (1967) distinguished acculturation as a collective, cultural or group-level phenomenon from psychological acculturation. While acculturation of the population (group-level) refers to the organizational changes in the social, economic and political structures of the groups involved in the acculturation process, psychological acculturation refers to changes in behaviours, attitudes, values, and identities that individuals experience as a result of being in contact with other cultures. Such distinction is essential. With the appropriate levels of analysis,

acculturation research is able to account for both the general changes apparent in a cultural group as well as for individual difference within the group. This distinction also allows systematic examination of the relationship between group-level and individual-level phenomena (Castro, 2003). Since the present study aims at examining Taiwanese-Chinese immigrants' implicit views of intelligence and how acculturation associates with their implicit views of intelligence, the study focuses more on psychological acculturation.

There are two fundamental issues in all acculturation research and theories: (1) directionality (i.e., in which direction do changes take place?); and (2) dimensionality (i.e., do changes take place on a single dimension or two independent dimensions?) (Castro, 2003; Sam, 2006). Regarding directionality, some acculturation researchers, particularly the earlier ones, see acculturation as a unidirectional process. These researchers argue that changes only occur to the migrated group who is expected to become more like the host group as the host group remains unchanged (Gordon, 1964; Graves, 1967). However, others (e.g., Berry, 1980; Teske & Nelson, 1974) argue that acculturation is more of a bidirectional, reciprocal process during which both the dominant group and the migrated group are changed to a certain extent. Such differences in view are closely related to the aforementioned confusion over the synonymous use of the term *assimilation* and *acculturation.*

The issue of dimensionality is closely linked with directionality. While some researchers adopt a unidimensional assumption (i.e., individuals lose their heritage cultural identity while acquiring new cultural identity because these two identities are mutually exclusive) (LaFromboise, Coleman, & Gerton, 1993), others assume a

bidimensional perspective (i.e., individuals do not lose their heritage cultural identity while acquiring new cultural identity because these two identities are independent dimensions) (Berry, 1980). The issues of directionality and dimensionality have influenced contemporary acculturation research, and based on these two conceptualizations of acculturation process, two different models of acculturation are proposed.

2.2.2 Unidimensional Model and Bidimensional Model

Much of the contemporary research on acculturation has been guided by two models of acculturation: (1) the unidimensional model (also known as the assimilation or linear-bipolar model) (e.g., Gordon, 1964, 1978); and (2) the bidimensional model (or multicultural model) (e.g., Berry, 1980).

The unidimensional model assumes acculturation is unidirectional and unidimensional and views acculturation as "a process of absorption into the dominant culture" (Castro, 2003, p. 10) during which identification with the culture of origin is eventually replaced by identification with the dominant culture. Early theorists of acculturation typically approached the topic of acculturation with the unidimensional model and described the process of acculturation as a unidirectional process during which individuals change their values, attitudes and behaviours to increase in identification with the mainstream culture and decrease in identification with their heritage culture (Castro, 2003; Ying & Han, 2008). For example, Gordon's assimilation model (1978) described the adjustment of immigrants and ethnic minorities to the larger mainstream society. According to Gordon, assimilation is a gradual process of penetration and absorption into the mainstream culture, and such process entails "the disappearance of the ethnic group

as a separate entity and the evaporation of its distinctive values" (Gordon, 1964, p.81). In other words, the immigrants relinquish values, behaviours and identities of their ethnic group to endorse the values, behaviours and identities of the dominant culture. Biculturalism is seen as a necessary mid-phase in the pathway to complete assimilation (Bourhis, Moise, Perreault, & Seneca, 1997). The unidimensional model has received a large amount of criticism. Some see it as prejudiced and value-laden for implying the dominance of the host culture over the minority immigrant culture (e.g., Oetting & Beauvais, 1991). In addition, research with ethnic minorities, such as Chinese Americans or Mexican Americans, provides evidence in refuting the unidimensional model's assumption of mutual exclusion of the two cultural identities (Nguyen & von Eye, 2002). The major criticism of the model is towards its parsimony and simplicity, which fail to capture all aspects of acculturation (Kang, 2006; Ryder et al., 2000). Due to these limitations, the bidimensional model has quickly become a viable alternative.

The bidimensional model argues that acculturation is bidirectional and bidimensional. This model refutes the notion of replacement (i.e., replacing one identity with the other), and suggests that individuals can develop a positive identification with the larger society while simultaneously maintaining their ethnic distinctiveness (Berry, 1997; Rogler, Cortes, & Malgady, 1991; Sayegh & Lasry, 1993). The model posits that: (1) individuals differ in the extent to include culturally based values, attitudes and behaviours in their self-identification; and (2) individuals are capable of having multiple independent cultural identities (Ryder et al., 2003). In other words, instead moving along a single continuum between two polar cultural identities as proposed by the unidimensional model, the bidimensional model depicts two independent, separate scales

for heritage and mainstream cultural identities. Biculturalism is thus more than the midpoint of the process; it actually indicates that the individuals hold full-blown bicultural identities. The bidimensional model has received considerable empirical support (e.g., Chia & Costigan, 2006; Costigan & Su, 2004; Ryder et al., 2000), and a number of bidimensional measures have been developed during the past two decades. These measures can be roughly summarized into two different categories, typological approach and dimensional approach, based on their assessments of the heritage culture as well as the mainstream culture (Kang, 2006).

2.2.3 Typological Approach and Dimensional Approach

Berry and his colleagues (1990; 1997; 2006) proposed the most influential and widely researched version of the bidimensional model. Berry argued that there are two fundamental questions for an acculturating individual: "How important is it to maintain my cultural identity and characteristics?" and "How important is it to build relationship with other culture groups?" Responses to these two questions guide the individual to adopt a particular acculturation strategy of the four potential types: integration, assimilation, separation and marginalization (Berry, 1997). *Integration* involves maintaining one's cultural heritage while participating in the new culture as an integral part (i.e., showing a willingness to mutually accommodate to both cultures and have social supports in both communities). *Assimilation* involves conformity to the host culture (i.e., relinquishing cultural heritage and adopting beliefs and behaviours of the new culture). *Separation* involves maintenance of heritage culture without inter-group relations, and *marginalization* involves adherence to neither culture.

Although Berry's typology has generated studies that have enriched our understanding of acculturation, it has been criticized for its conceptual and methodological issues. Many researchers (e.g., Kang, 2006; Ryder et al., 2000) have indicated that the typological approach may be inappropriate in representing the underlying dimensions, which leads to the lack of independence in the tests of these strategies. For example, Berry, Kim, Power, Young, and Bujaki (1989) reported a strong correlation between assimilation and separation scores in the French-Canadian sample and a strong correlation between integration and assimilation scores in the Hungarian-Canadian sample. These findings suggested that the typology approach may be insufficient in describing acculturation and that these four acculturation modes probably should not be measured by separate tests (Kang, 2006; Rudmin, 2003).

Based on the bidimensional model of acculturation, the dimensional approach on the other hand does not categorize acculturation. Instead, it measures cultural orientations or cultural identification with two dimensional scales. The dimensional approach seems to be a more suitable alternative to the typology approach, and consequently, a number of acculturation scales and tests with the dimensional approach have been developed, such as the General Ethnicity Questionnaire (GEQ) (Tsai, Ying, & Lee, 2000) and the Vancouver Index of Acculturation (VIA) (Ryder et al., 2000).

CHAPTER 3: METHOD

3.1 Participants

Potential participants were recruited through announcements and posted flyers in post secondary institutions as well as various community cultural agencies and organizations (e.g., student associations and religious groups) in the Lower Mainland of British Columbia, Canada. Consents were provided by the participants' voluntary completion and return of the questionnaires. Of 450 targeted participants, 340 (75.6%) completed and returned the questionnaires.

3.2 Measures

The central measure was the Taiwanese-Chinese Views of Intelligence (TCVI) Questionnaire developed by Yang and Sternberg (1997b). The original questionnaire in Chinese and English was provided courtesy of Dr. Yang. Demographic information was collected, and the Vancouver Index of Acculturation (VIA) (Ryder et al., 2000) was also administered. The TCVI Questionnaire was available in either paper-based or electronic format, and it was available in either traditional Chinese or English script.

3.2.1 Taiwanese-Chinese Views of Intelligence Questionnaire (Yang & Sternberg, 1997b)

The Taiwanese-Chinese Views of Intelligence (TCVI) Questionnaire contains the master list of 120 attributes of an intelligent person complied in Yang and Sternberg (1997b), and two different ratings were used to evaluate the list of attributes. For

frequency ratings (please see Appendix A), participants were asked to rate how *frequently* an intelligent person would display each of the 120 attributes. A seven-point Likert scale (from 1 = extremely uncommon to 7 = extremely common) was used. For importance ratings (please see Appendix B), participants were asked to rate each of the 120 attributes in terms of how *important* each attribute pertains to their conceptions of an intelligent person. A seven-point Likert scale (from 1 = extremely unimportant to 7 = extremely important) was used.

Participants were also invited to list any additional characteristics, attributes or behaviours that they considered necessary and crucial in the assessment or understanding of intelligence but were not provided in the list.

3.2.3 Demographic Information

Participants were asked to provide demographic information on their general background, educational experience, and migration experience (please see Appendix C). The general background questions collected data on participants' gender, year of birth, city of residence, current occupation, occupation prior to arrival in Canada, father's current occupation, mother's current occupation, religious preference, place of birth, place of birth for both parents, and self-identified ethnicity. Educational experience questions probed participants' highest level of education completed, years of formal Canadian education, years of formal Taiwanese education, number of children attending Canadian formal schooling, and level of satisfaction with the education provided in Canada and in Taiwan. Migration experience questions collected data on participants' city of residence in Taiwan, age of arrival in Canada, years living in Canada, countries of residence for more than two years other than Canada, current immigration status, current

family living arrangement, level of satisfaction about the decision of immigrating to Canada, and the likelihood of leaving Canada for more than one year in the next ten years.

3.2.4 Vancouver Index of Acculturation (Ryder et al., 2000)

The Vancouver Index of Acculturation (VIA) (please see index D) is a 20-item self-report instrument designed to assess domains pertinent to acculturation, including values, social relationships, and adherence to traditions. Items were generated in pairs with one item in each pair probing participants the extent to which they identified with the heritage culture and the mainstream Canadian culture. Each item was rated on a nine-point Likert-type scale ranging from 1 = strongly disagree to 9 = strongly agree. Two subscale scores were computed: (1) *Heritage Score* - computed by adding participants' responses to the odd number items, which signify level of identification with the heritage culture; and (2) *Mainstream Score* - computed by adding participants' responses to the even number items, which signify level of identification with the mainstream Canadian culture. A higher score represents higher level of identification with the corresponding culture.

In terms of concurrent validity, Ryder et al. (2000) has found that both heritage and mainstream dimensions had significant correlations with the Suinn-Lew Asian Self-Identity Acculturation Scale (Suinn, Ahuna, & Khoo, 1992) as well as with theoretically relevant factors, such as percentage of time lived in the host culture, percentage of time educated in the host culture, generational status, anticipates remaining in the host culture, host-culture identification, and English as a first or second language. VIA dimensions have also revealed high internal consistency among different Asian samples (Cronbach

alpha = .91 to .92 for the heritage dimension; Cronbach alpha = .85 to .89 for the mainstream dimension) and fair mean interintem correlations (heritage: r = .52 to .53; mainstream: r = .38 to .46) (Ryder et al., 2000). In the present study, Cronbach alphas were .86 for the heritage subscale and .86 for the mainstream subscale for frequency ratings of the TCVI Questionnaire; Cronbach alpha were .86 for heritage subscale and .80 for mainstream subscale for importance ratings of the TCVI Questionnaire.

3.3 Procedure

Stratified random assignment of volunteer participants who responded to postings and advertisements of the research was conducted based on age and gender, with one group responding only to the TCVI Questionnaire with frequency ratings and the other group responding only to the TCVI Questionnaire using importance ratings. Participants could choose the language (i.e., English or Chinese script) as well as the format (i.e., paper-based or electronic-based) of the questionnaire they preferred. Participants filled out their questionnaires individually at a time that was convenient for them. Completed surveys were collected either at the time of completion or returned to the primary investigator by e-mail.

3.4 Analyses

Prior to submitting the data to factor analyses, item analyses were conducted with the methods recommended by Floyd and Widaman (1995). Item mean, standard deviation, range, and inter-correlation were calculated. Items were also reviewed for internal consistency, and outliers were identified.

3.4.1 Principal Components Analysis (PCA)

To replicate Yang and Sternberg's (1997b) analyses, principle components analysis (PCA) on the total data set using correlation coefficients as input with a varimax rotation of the factorial axes was conducted. Although Yang and Sternberg (1997b) did not specify their methods in determining the number of components; however, a minimum of five items with significant loadings (i.e., those $\geq |.40|$) was observed on each retained component.

3.4.2 Exploratory Factor Analysis (EFA)

Although Yang and Sternberg (1997b) used PCA with a verimax rotation as an extraction method, a substantial amount of research has argued that PCA does not determine latent variables underlying the observed variables (Costello &Osborn, 2005; Floyd & Widaman, 1995; Gorsuch, 1990; Hatcher, 1994; Widaman, 1990, 1993). Given the goal of the present study was to determine the underlying constructs in Taiwanese-Chinese immigrants' implicit theories of intelligence, additional exploratory factor analysis (EFA) was conducted.

Findings from the item analyses using the methods recommended by Floyd and Widaman (1995) were used to select items to be submitted to the EFA. An item would be excluded from the factor analysis if it did not correlate at least moderately (i.e., $r \geq .30$) with at least two other items in the questionnaire. Correct total-item correlations were also computed. Analyses were then conducted with SPSS 16.0 (2007) and guided by the methods recommended by Fabrigar, MacCallum, Wegener, and Strahan (1999) as well as those endorsed by Comrey and Lee (1992) and Floyd and Widaman (1995). Accordingly, principal axis extractions, with squared multiple correlations serving as initial

communality estimates, were applied. The number of factors to extract was guided by the recommendations of Velicer, Eaton, and Fava (2000) and Henson and Roberts (2006): a combination of parallel analysis (Horn, 1965) supplemented by a visual scree test (Cattell, 1966). SPSS syntax for parallel analysis was obtained from O'Connor (2000). Given that some evidence favours overestimating the number of factors (Reise, Waller, & Comrey, 2000; Wood, Tataryn, & Gorsuch, 1996), the highest to lowest number of factors should be examined until the most interpretable solution is found. Oblique (i.e., promax) rotation methods were applied. For interpretation, three salient item loadings (pattern coefficients) were necessary to form a factor, and complex items (i.e., items loaded highly on more than one factor) were excluded. Salient loadings were those $\geq |.40|$ and the highest loading for that variable (Gorsuch, 1997). In addition, internal consistency estimates (Cronbach α) were obtained to examine the reliability of each factor.

3.4.3 Factor Scores and VIA Subscores Correlates

Participants who did not complete the demographic information and VIA or who identified their heritage culture as other than Taiwanese-Chinese were excluded from the correlational analysis. The sample was reduced to 167 for frequency ratings of the TCVI Questionnaire and 161 for importance ratings of the TCVI Questionnaire. Each participant's responses were converted into weighted factor scores using the Bartlett method with SPSS 16.0 (2007) and were correlated with the two VIA subscales (i.e., Heritage Score and Mainstream Score).

CHAPTER 4: RESULTS

The aim of the present study was threefold. First, it was of interest to explore how Taiwanese-Chinese immigrant adults living in Canada view intelligence, and second, whether their views of intelligence were different from those of Taiwanese nationals as reported in Yang and Sternberg (1997b). Third, the present study determined whether views of intelligence were associated with identification with mainstream Canadian culture and/or Taiwanese-Chinese heritage culture. Two groups of Taiwanese-Chinese immigrant adults completed two ratings of Taiwanese-Chinese Views of Intelligence (TCVI) Questionnaire (Yang & Sternberg, 1997b). While the first group of participants was required to respond to the TCVI Questionnaire using only frequency ratings (i.e., how frequently an intelligent person exhibits each attribute), the second group of participants responded to the same items using only importance ratings (i.e., how important each attribute is to their conception of an intelligent person).

The results are reported in three parts. First, an overview of the characteristics of the two groups of participants who completed each rating of the TCVI Questionnaire is provided. Second, the results of the factor analyses performed on both ratings of the TCVI questionnaire to determine the latent factors that underlie responses made by the participants are reported. Lastly, results of the correlational analyses that examined the association between factors obtained and Taiwanese-Chinese immigrant adults' identification with their Taiwanese-Chinese heritage culture and Canadian mainstream

cultures as measured by the Vancouver Index of Acculturation (VIA) (Ryder et al., 2000) are presented.

4.1 Sample Description

As shown in Table 4.1, the group (n = 171 participants) that responded to the items on TCVI Questionnaire using frequency ratings included: 83 undergraduate students, 10 graduate students, and 78 non-student adults. There were 75 men and 96 women; the mean age of the group was 30.94 years (SD = 12.17). The majority of the participants (69.01%) had lived in Canada for 4-12 years; 23.39% had lived in Canada for 13 years and more, and 7.02% had lived in Canada for three years and less. 130 participants (76.02%) chose to respond to the TCVI Questionnaire in Chinese script while 41 participants (23.98%) chose to respond to the TCVI Questionnaire in English. The mean Heritage Score on the VIA for this group was 68.22 (SD = 9.55) while the mean Mainstream Score was 58.71 (SD =10.53).

The group (n = 169 participants) that responded to the items on TCVI Questionnaire using importance ratings included: 84 undergraduate students, 15 graduate students, and 69 non-student adults. There were 73 men and 96 women; the mean age of the group was 29.34 years (SD = 11.43). The majority of the participants (70.4%) had lived in Canada for 4-12 years; 17.2% had lived in Canada for 13 years and more, and 11.2% had lived in Canada for three years and less. 138 participants (81.66%) chose to respond to the TCVI Questionnaire in Chinese script while 31 participants (18.34%) chose to respond to the TCVI Questionnaire in English. The mean Heritage Score on the VIA for this group was 66.34 (SD = 12.52) while the mean Mainstream Score was 58.00 (SD = 11.02).

No statistically detectable differences ($p \leq .05$) were found between the two groups of participants in their Heritage Score; Mainstream Score; age; gender; or years living in Canada.

Table 4.1 Descriptive Information for Taiwanese-Chinese Immigrant Adults Who Completed the Taiwanese-Chinese Views of Intelligence Questionnaire (Yang & Sternberg, 1997b)

Variable	Frequency Ratings (n = 171)			Importance Ratings (n = 169)		
	n	*M* or *f*	*SD*	*n*	*M* or *f*	*SD*
Age	170	30.94	12.17	165	29.34	11.43
Gender						
Male	75	43.86%	n/a	73	43.20%	n/a
Female	96	56.14%	n/a	96	56.80%	n/a
Occupation						
Undergraduate students	83	48.54%	n/a	84	49.70%	n/a
Graduate students	10	5.84%	n/a	15	8.88%	n/a
Non-student adults	78	45.61%	n/a	69	40.83%	n/a
Unspecified	0	0.00%	n/a	1	0.59%	n/a
Survey Language						
Chinese	130	76.02%	n/a	138	81.66%	n/a
English	41	23.98%	n/a	31	18.34%	n/a
Years in Canada						
< 1 year	1	0.59%	n/a	2	1.20%	n/a
1 ~ 3	11	6.47%	n/a	17	10.18%	n/a
4 ~ 6	31	18.24%	n/a	35	20.96%	n/a
7 ~ 9	41	24.12%	n/a	40	23.95%	n/a
10 ~ 12	46	27.06%	n/a	44	26.35%	n/a
13 ~ 15	17	10.00%	n/a	14	8.38%	n/a
16 ~ 18	13	7.65%	n/a	7	4.19%	n/a
19 ~ 21	8	4.71%	n/a	4	2.40%	n/a
22 ~ 24	1	0.59%	n/a	2	1.20%	n/a
25 ~ 27	1	0.59%	n/a	2	1.20%	n/a
Unspecified	1	0.59%	n/a	2	1.20%	n/a
VIA Subscale Score						
Heritage	171	68.22	9.55	166	66.34	12.52
Mainstream	171	58.71	10.53	166	58.00	11.02

4.2 Inter-Item Correlation Matrix

Inter-item correlation matrixes of 120 items for both ratings of the TCVI Questionnaire were reviewed to determine the association between the items. The

magnitude of correlations obtained from frequency ratings ranging from non-significant to .70 ($p \leq .01$), and the magnitude of correlations obtained from importance ratings ranging from non-significant to .69 ($p \leq .01$).

4.3 Factor Analysis

The data were submitted to several factor analyses. A rationale for conducting these factor analyses and the results obtained are reported in the following section.

4.3.1 Principal Components Analysis (PCA)

First, to replicate Yang and Sternberg's (1997b) analysis of the TCVI Questionnaire, principal components analysis (PCA) was performed using correlation coefficients as input, followed by varimax rotation of the factorial axes. Yang and Sternberg (1997b) did not specify their methods in determining the number of components; however, a minimum of five items with significant loadings (i.e., those $\geq$ |.40|) was observed on each retained component.

4.3.1.1 PCA of Frequency Ratings of the Taiwanese-Chinese Views of Intelligence Questionnaire

Six components emerged from the analysis of frequency ratings of TCVI Questionnaire and accounted for 10.87%, 8.60 %, 5.27%, 4.22%, 2.92%, and 2.74% respectively, for a total variance (34.62%) after varimax rotation. Attributes with loadings of .40 and above on the components are listed in Table 4.2. The components in the present study were labelled: (I) *Interpersonal Intelligence*; (II) *General Cognitive Ability*; (III) *Intrapersonal Intelligence*; (IV) *Intellectual Detachment*; (V) *Enthusiastic Learning*; and (VI) *Analytical Thinking*.

The first component (*Interpersonal Intelligence*) included descriptions such as "knows the appropriate ways to treat others and deal with daily matters," "is able to help him/herself and others; is able to relieve his/her and others' unhappiness," and "has inner serenity and is able to remain peaceful when facing all kinds of people and matters, whether they are likeable or not."

The second component (*General Cognitive Ability*) incorporated attributes such as "has strong learning ability; learns things faster than others," "brain is always active and flexible," and "answers questions quickly."

The third component (*Intrapersonal Intelligence*) included descriptions such as "knows the meaning and purpose of his/her life and has his/her own philosophy of life," "is concise in speech; his/her arguments are short but right to the point," and "is able to learn from past mistakes and does not repeat the same mistakes."

The fourth component (*Intellectual Detachment*) included items such as "focuses too much on unnecessary details," "likes to think quietly, day-dream, or be lost in thinking," and "is lonesome; is easily misunderstood and has more difficulties finding friends who really understand him/her."

The fifth component (*Enthusiastic Learning*) included items such as "is able to make good use of all kinds of resources," "is curious about the things s/he does not understand," and "is diligent in finding out the roots or the causes of everything; enjoys questioning."

The sixth component (*Analytical Thinking*) included items such as "evaluates problems in great depth and detail," "thinks analytically and is able to think matters through from all possible angles," and "when pointing to him/her one aspect, s/he is able

to come back with three other aspects; is able to come up with the whole picture when given limited information."

Table 4.2 Components Underlying Taiwanese-Chinese Immigrants' Conceptions of Intelligence Based on Frequency Ratings of the Taiwanese-Chinese Views of Intelligence Questionnaire (Yang & Sternberg, 1997b)

Components & Constituent Attributes	Loading
I. Interpersonal Intelligence	
Knows the appropriate ways to treat others and deal with daily matters	.73
Is able to help him/herself and others; is able to relieve his/her and others' unhappiness	.72
Is kind and compassionate: treats others with politeness, warmth, and understanding	.72
Is good at understanding and empathizing with others' feelings	.72
Is good at interacting with people and has good interpersonal relationships	.72
Is willing to listen to others' opinions and actively uses them for self-improvement	.70
Knows people well and is able to put the right person in the right position	.66
Is able to respect others	.65
Brings about joy and harmony; uses his/her wisdom to benefit self, others, and the entire society	.64
Earns others' affeetion easily and is well-liked	.59
Has relatively more friends	.59
Accepts different opinions and does not insist on his/her own ideas	.58
Is willing to help others and knows how to do it appropriately	.57
Knows how to build up his/her reputation and interpersonal network	.57
Has a sense of humour	.54
Has leadership abilities	.53
Is generous; does not try to benefit from every interaction	.51
Has inner serenity and is able to remain peaceful when facing with all kinds of people and matters, whether they are likeable or not	.48
Is able to discern the nature of life and has a deep understanding of some profound philosophy of life	.47
Has good self-control over the desire to show off: is a high achiever but does not flaunt achievements	.46
Is able to aet meekly or assertively, whatever is required to accomplish his/her goal in the immediate circumstance	.46
Lively; optimistic	.45
Is able to satisfy different expectations when carrying out everyday tasks	.44
Knows there is always a more able person out there, and does not deem himself/herself as intelligent enough	.44
Is able to understand people's intention and perceptive to what's in people's mind	.43
Has penetrating understanding of the dynamics of human relationships; is perceptive about human relationships	.43
Knows when to advance and when to draw back	.41
Is able to enjoy his/her life	.41
II. General Cognitive Ability	
Brain is always active and flexible	.76

Components & Constituent Attributes	Loading
Has strong intelleetual ability, espeeially for some abstract disciplines like math and physics	.75
Answers questions quickly	.71
Is very capable of organizing things	.67
Makes quick responses	.66
Has strong learning ability; learns things faster than others	.63
Possesses a special talent	.56
Has a higher IQ than others	.56
Is insistent on winning, and does not admit failure easily	.53
Does everything better than others and more easily earns praise	.53
Is able to grasp the fundamental structure and important elements of complex matters	.52
When pointing to him/her one aspect, s/he is able to come back with three other aspects; is able to come up with the whole picture given limited information	.52
Possesses tremendous amount of knowledge ; is more knowledgeable than others	.51
Reacts swiftly and flexibly to sudden external changes	.50
Is full of ideas and insights	.49
Has good grades at school	.49
Is able to find or devise the method requiring the least effort to aecomplish the most difficult project	.48
Has a good memory, does not forget the things s/he once sees	.46
Is able to think calmly when facing an urgent and dangerous situation	.44
Is able to express his/her own ideas and opinions well	.43
Makes good use of time and knows how to manage time well	.41
Possesses expertise of a certain domain of knowledge	.41
Is highly perceptive; perceives and understands things quiekly	.40
III. Intrapersonal Intelligence	
Knows the meaning and purpose of his/her life and has his/her own philosophy of life	.73
Is concise in speech; his/her arguments are short but right to the point	.54
Is able to learn from past mistakes and does not repeat the same mistakes	.54
Is able to predict future developments by analyzing current circumstances	.53
Has a clear sense of right and wrong	.47
Knows what s/he wants and how to pursue what is suitable to him/herself	.46
Has penetrating understanding of the dynamics of human relationships; is perceptive about human relationships	.46
Has correct values and judgments, which are immune to external influences	.45
Knows him/herself well; has good self-understanding	.45
Knows when to advance and when to draw back	.42
Thinks long term rather than short term	.42
Is able to accept challenges and is not afraid of difficulties	.40
IV. Intellectual Detachment	
Focuses too much on unnccessary details	.74
Likes to think quietly, day-dream, or be lost in thinking	.68
Thinks too much, worries easily	.67
Is lonesome; is easily misunderstood and has more difficulties finding friends who really understand him/her	.61
Puts his/her interests first	.56
Is often quiet in conversation, but talks at length about the topics which interest him/her	.54
Thinks that s/he is very intelligent and is arrogant and proud	.48
Has a comprehensive view of the world's situation and can describe it in a few sentences	.45

Components & Constituent Attributes	Loading
Occasionally draws excessive attention to self	.45
Is sensitive	.42
Does not take opinions of others easily; insists on his/her own ideas	.41
Likes to argue and is adept in argument and debate	.40
V. Enthusiastic Learning	
Is able to make good use of all kinds of resources	.73
Is curious about the things s/he does not understand	.54
Is diligent in finding out the roots or the causes of everything; enjoys questioning	.53
Make good use of opportunities	.50
Is able to learn from past mistakes and does not repeat the same mistakes	.41
VI. Analytical Thinking	
Evaluates problems in great depth and details	.74
Thinks analytically and is able to think matters through from all possible angles	.63
When pointing to him/her one aspect, s/he is able to come back with three other aspects; is able to come up with the whole picture given limited information	.50
Is able to discern the nature of life and has a deep understanding of some profound philosophy of life	.47

Note. Only salient coefficients (≥ |.40|) are presented. Scale items taken from the Taiwanese-Chinese Views of Intelligence Questionnaire by S. Yang, & R. J. Sternberg, 1997.

4.3.1.2 PCA of Importance Ratings of the Taiwanese-Chinese Views of Intelligence Questionnaire

Four components emerged from the analysis of importance ratings of the TCVI Questionnaire and accounted for 21.12%, 5.07%, 3.31%, and 2.99% respectively, for a total of 32.49% of the variance accounted for after varimax rotation. Attributes with loadings of .40 and above on the factors are listed in Table 4.3. The components in the present study were labelled: (I) *Inter- & Intra-personal Intelligence*; (II) *Intellectual Detachment*; (III) *Exceptional Performance*; and (IV) *General Cognitive Ability*.

The first component (*Inter- & Intra-personal Intelligence*) included descriptions such as "is willing to help others and knows how to do it appropriately," "is able to help him/herself and others; is able to relieve his/her and others' unhappiness," and "knows the appropriate ways to treat others and deal with daily matters."

The second component (*Intellectual Detachment*) included items such as "thinks that s/he is very intelligent and is arrogant and proud," "puts his/her interest first," and "likes to think quietly, day-dream, or be lost in thinking."

The third component (*Exceptional Performance*) included attributes such as "does everything better than others and more easily earns praise," "does things relatively more smoothly; experiences fewer obstacles or challenges," and "has good grades at school."

The fourth component (*General Cognitive Ability*) included items such as "thinks more, explores problems that have hitherto been unanswered," "makes quick responses," and "brain is always active and flexible."

Table 4.3 Components underlying Taiwanese-Chinese Immigrants' Conceptions of Intelligence Based on Importance Ratings of the Taiwanese-Chinese Views of Intelligence Questionnaire (Yang & Sternberg, 1997b)

Components & Constituent Attributes	Loading
1. Inter- & Intra-personal Intelligence	
Is willing to help others and knows how to do it appropriately	.81
Is able to help him/herself and others; is able to relieve his/her and others' unhappiness	.81
Is able to respect others	.81
Knows the appropriate ways to treat others and deal with daily matters	.81
Lively; optimistic	.79
Accepts different opinions and does not insist on his/her own ideas	.78
Is good at understanding and empathizing with others' feelings	.77
Is humble; is able not to take pride in his/her talent(s)	.76
Brings about joy and harmony; uses his/her wisdom to benefit self, others, and the entire society	.75
Has penetrating understanding of the dynamics of human relationships; is perceptive about human relationships	.75
Is generous; does not try to benefit from every interaction	.74
Knows how to enjoy being alone and how to enjoy oneself	.73
Knows when to advance and when to draw back	.72
Works very hard and is willing to work hard	.70
Is able to act meekly or assertively, whatever is required to accomplish his/her goal in the immediate circumstance	.70
Has correct values and judgments, which are immune to external influences	.69
Is able to enjoy his/her life	.69
Is good at interacting with people and has good interpersonal relationships	.69
Does things diligently and actively	.67
Is able to satisfy different expectations when carrying out everyday tasks	.66

Components & Constituent Attributes	Loading
Knows there is always a more able person out there, and does not deem himself/herself as intelligent enough	.66
Earns others' affection easily and is well-liked	.65
Has a clear sense of right and wrong	.65
Has inner serenity and is able to remain peaceful when facing with all kinds of people and matters, whether they are likeable or not	.65
Is willing to listen to others' opinions and actively uses them for self-improvement	.64
Knows the meaning and purpose of his/her life and has his/her own philosophy of life	.62
Is able to think calmly when facing an urgent and dangerous situation	.61
Thinks long term rather than short term	.61
Is kind and compassionate: treats others with politeness, warmth, and understanding	.61
Knows how to build up his/her reputation and interpersonal network	.61
Knows people well and is able to put the right person in the right position	.59
Makes good use of time and knows how to manage time well	.58
Is able to learn from past mistakes and does not repeat the same mistakes	.58
Knows him/herself well; has good self-understanding	.57
Is able to follow his/her heart's desires without violating moral principles	.56
Has good self-control over the desire to show off: is a high achiever but does not flaunt achievements	.56
Has relatively more friends	.56
Worries before the whole world begins to worry, and rejoices only after the whole world has rejoiced	.54
Knows to learn from the strengths of others	.54
Thinks clearly: knows the appropriate time and place for his/her actions	.52
Is able to accept challenges and is not afraid of difficulties	.52
Is able to prioritize and does things in a well-organized manner	.52
Does not show off his/her "petty intelligence;" does not employ his/her intelligence for petty purposes	.52
Knows what s/he wants and how to pursue what is suitable to him/herself	.51
Has confidence in him/herself; is sure of him/herself and of his/her own worth	.51
Is able to express his/her own ideas and opinions well	.49
Has greater sense of accomplishment	.49
Has a sense of humour	.49
Has leadership abilities	.48
Is able to extract him/herself from pitfalls and perils and orients him/herself toward favourable and secure surroundings	.47
Is able to be forceful and decisive	.47
Is respected and has higher social status than others	.46
Is able to discern the nature of life and has a deep understanding of some profound philosophy of life	.46
Is efficient; does not procrastinate	.45
Once he/she has made up his/her mind, does not give up his/her decisions when facing others' criticism	.44
Has a plan for the future and carries out the plan rationally and methodically	.43
Adapts well to different environments	.41
Does not always portray him/herself as a strong person, because s/he knows that sometimes it's the weak who really possess power	.41
Is able to predict future developments by analyzing current circumstances	.40

Components & Constituent Attributes	Loading
II. Intelleetual Detachment	
Thinks that s/he is very intelligent and is arrogant and proud	.78
Puts his/her interests first	.75
Likes to argue and is adept in argument and debate	.72
Does not take opinions of others easily; insists on his/her own ideas	.70
Likes to think quietly, day-dream, or be lost in thinking	.68
Is often quiet in conversation, but talks at length about the topics which interest him/her	.56
Is insistent on winning, and does not admit failure easily	.51
Focuses too much on unnecessary details	.51
Is overwhelmed by his/her outstanding intelligence and uses intelligence for harmful purposes	.47
More easily become the target of jealousy and resentment than others	.46
Occasionally draws excessive attention to self	.41
Is lonesome; is easily misunderstood and has more difficulties finding friends who really understand him/her	.41
III. Exeeptional Performance	
Does everything better than others and more easily earns praise	.74
Does things relatively more smoothly; experiences fewer obstacles or challenges	.69
Has good grades at school	.63
Answers questions quickly	.52
Has greater sense of accomplishment	.46
Is respected and has higher social status than others	.44
IV. General Cognitive Ability	
Thinks more, explores problems that have hitherto been unanswered	.80
Makes quick responses	.64
Brain is always active and flexible	.48
Has strong learning ability; learns things faster than others	.47

Note. Only salient coefficients ($\geq |.40|$) are presented Scale items taken from the Taiwanese-Chinese Views of Intelligence Questionnaire by S. Yang, & R. J. Sternberg, 1997

Although there were similarities in the components generated in the present study and in Yang and Sternberg's (1997b) study, there were major discrepancies in the results from the PCA. For instance, the components *Enthusiastic Learning*, *Analytical Thinking*, and *Exceptional Performance* were not identified in Yang and Sternberg (1997b). Thus, it seemed crucial to use a more refined and exploratory method to determine the latent factor structure underlying Taiwanese-Chinese immigrants' conceptions of intelligence. Moreover, research has argued the appropriateness of Exploratory Factor Analysis (EFA) over PCA in identifying the factor structure underlying a set of data (Costello & Osborn,

2005; Floyd & Widaman, 1995; Gorsuch, 1990; Hatcher, 1994; Widaman, 1990, 1993). Given the major purpose of the present study was to identify the latent structure of Taiwanese-Chinese immigrants' conceptions of intelligence, EFA was also performed.

4.3.2 Exploratory Factor Analysis (EFA)

The Exploratory Factor Analysis (EFA) was conducted according to the methods recommended by Fabrigar et al. (1999). Principal axis extraction with a promax rotation was applied. A combination of parallel analysis (Horn, 1965) supplemented by visual scree test (Cattell, 1966) was used to determined the number of factors retained. Complex items were excluded. In addition, there should be at least three items with salient loadings (i.e., those $\geq |.40|$) to form a factor.

4.3.2.1 EFA of Frequency Ratings of the Taiwanese-Chinese Views of Intelligence Questionnaire

For frequency ratings of TCVI Questionnaire, one item ("does not necessarily possess outstanding cognitive ability") was eliminated from further analysis since it did not correlate at least moderately ($r \geq .30$) with at least two other items in the questionnaire. Cronbach's α for the rest of the set was .96. Based on the results of parallel analysis, it was determined that seven factors should be extracted. The visual scree was marked by a small discontinuation at four factors and a more pronounced break at two factors. Consequently, two- through eight-factor solutions were examined. When eight factors were extracted, there were only two salient pattern coefficient loadings on the seventh factor. Following Gorsuch's (1988) recommendation that extraction be stopped and only the major factors retained when singlet or doublet factors are first encountered, the seven-factor solution therefore appeared most appropriate.

As shown in Table 4.4, the factors obtained from EFA were labelled: (1) *Interpersonal Intelligence*; (2) *General Cognitive Ability*; (3) *Self-Regulatory Ability*; (4) *Intellectual Detachment*; (5) *Intrapersonal Intelligence*; (6) *Intellectual Self-Effacement*; and (7) *Exceptional Performance*, and accounted, respectively for 21.06%, 9.17%, 3.66%, 2.92%, 2.29%, 1.93%, and 1.82%, of the total variance (42.85%) after promax rotation. Pattern coefficients and scale reliabilities for the seven-factor solution are also presented in Table 4.4. Factor inter-correlations are presented in Table 4.5; the magnitude of correlations obtained ranged from .03 to .47, with the strongest correlation .47 between *General Cognitive Ability* and *Self-Regulatory Ability*.

The first factor (*Interpersonal Intelligence*) described abilities in managing interpersonal relationship and included descriptions such as "is good at interacting with people and has good interpersonal relationships," "has relatively more friends," and "knows the appropriate ways to treat others and deal with daily matters."

The second factor (*General Cognitive Ability*) described general cognitive capacities and included items such as "has strong learning ability; learns things faster than others," "brain is always active and flexible," and "has strong intellectual ability, especially for some abstract disciplines like math and physics."

The third factor (*Self-Regulatory Ability*) illustrated self-regulatory capabilities in behaviour monitoring and goal attainment and included attributes such as "knows what s/he wants and how to pursue what is suitable for him/herself," "knows when to advance and when to draw back," and "is able to think calmly when facing an urgent and dangerous situation."

The fourth factor (*Intellectual Detachment*) described withdrawal and detachment from other individuals; it included attributes such as "is lonesome; is easily misunderstood and has more difficulties finding friends who really understand him/her," "likes to think quietly; day-dream, or be lost in thinking," and "puts his/her interests first."

The fifth factor (*Intrapersonal Intelligence*) described the knowledge about oneself and contained items such as "is able to discern the nature of life and has a deep understanding of some profound philosophy of life," "thinks analytically and is able to think matters through from all possible angles," and "knows him/herself well; has good self-understanding."

The sixth factor (*Intellectual Self-Effacement*) described modesty and included items such as "is humble; is able not to take pride in his/her talent(s)," "knows there is always a more able person out there, and does not deem him/herself as intelligent enough" and "is willing to help others and knows how to do it appropriately."

The seventh factor (*Exceptional Performance*) described the better performance outcome of an intelligent individual and included traits such as "is able to follow his/her heart's desires without violating moral principles," "does things relatively more smoothly; experiences fewer obstacles or challenges," and "is usually given more responsibility; has greater workload; works more."

Table 4.4 Pattern Coefficients, Communalities, and Reliabilities for the Seven-Factor Structure of Taiwanese-Chinese Immigrants' Conceptions of Intelligence for the Taiwanese-Chinese Views of Intelligence Questionnaire: Frequency Ratings

Factor	1	2	3	4	5	6	7	h^2	α
1. Interpersonal Intelligence									.93
Is good at interaeting with people and has good interpersonal relationships	**.78**	.12	.06	-.04	-.23	-.02	-.07	.59	
Has relatively more friends	**.72**	.01	-.32	.01	-.01	-.04	.23	.44	
Has leadership abilities	**.69**	.04	-.02	-.01	-.17	-.13	.15	.43	
Is able to help him/herself and others; is able to relieve his/her and others' unhappiness	**.67**	.11	.04	-.01	.02	.05	-.07	.54	
Knows people well and is ablc to put the right person in the right position	**.67**	.07	-.09	-.09	.31	-.07	.06	.61	
Knows the appropriate ways to treat others and deal with daily matters	**.67**	.00	.06	-.04	.02	-.03	-.02	.49	
Has a sense of humour	**.67**	.06	-.05	.07	.13	-.32	.01	.40	
Brings about joy and harmony; uses his/her wisdom to benefit self, others, and the entire society	**.62**	.08	-.02	.05	.05	.12	-.14	.50	
Earns others' affection easily and is well-liked	**.62**	.08	.05	-.04	-.18	.07	-.01	.42	
Is willing to listen to others' opinions and aetively uses them for self-improvement	**.56**	-.03	-.09	-.12	.35	-.06	-.02	.51	
Is good at understanding and empathizing with others' feelings	**.56**	-.06	-.08	.03	.38	.03	.11	.57	
Knows how to build up his/her reputation and interpersonal network	**.54**	-.10	.08	.21	.19	-.13	.12	.42	
Is kind and compassionate: treats others with politeness, warmth, and understanding	**.53**	-.09	-.11	-.10	.19	.35	.06	.67	
Is able to prioritize and does things in a well-organized manner	**.48**	.34	.09	-.03	-.10	.08	.04	.45	
Is generous; does not try to benefit from every interaction	**.44**	-.12	-.03	-.03	-.10	.36	.28	.44	
Has inner serenity and is able to remain peaceful when facing with all kinds of people and matters, whether they are likeable or not	.44	-.21	.25	.10	-.06	.20	-.27	.49	
Aceepts different opinions and does not insist on his/her own ideas	**.42**	-.15	.30	-.03	.25	.00	-.13	.52	
Is able to understand people's intention and perceptive to what's in people's mind	**.42**	.07	.18	.39	.21	-.07	-.08	.52	
Worries before the whole world begins to worry, and rejoices only after the whole world has rejoiced	**.42**	.07	.06	.22	-.27	.17	.02	.28	
Knows to learn from the strengths of others	**.41**	.09	.22	.02	-.11	.27	-.25	.49	
Is able to satisfy different expectations when carrying out everyday tasks	**.40**	-.01	.08	.01	.00	.23	.35	.46	
2. General Cognitive Ability									.89
Has strong learning ability; learns things faster than others	.06	**.76**	-.07	-.12	-.01	-.03	-.03	.48	
Brain is always active and flexible	-.03	**.72**	.09	-.12	.05	-.03	.08	.58	
Has strong intellectual ability, especially for some abstraet disciplines like math and physics	-.14	**.68**	.08	-.08	-.02	-.09	-.01	.47	
Makes quiek responses	.09	**.65**	.06	-.10	-.08	-.15	-.01	.42	
Answers questions quickly	.09	**.61**	-.20	.15	-.02	-.05	.35	.62	
Is very capable of organizing things	.13	**.59**	.04	-.26	.11	.00	.25	.56	
Has a good memory, does not forget the things s/he onee sees	.09	**.59**	-.11	-.08	.09	-.01	-.04	.30	
Has a higher IQ than others	-.12	**.58**	-.10	.21	.09	-.01	.19	.55	

Factor	1	2	3	4	5	6	7	h^2	α
Reacts swiftly and flexibly to sudden external changes	.29	**.57**	.07	-.21	-.01	.02	-.04	.45	
Is full of ideas and insights	.01	**.57**	-.10	-.01	.05	.27	.03	.39	
Possesses a special talent	.06	**.55**	-.05	.14	-.06	-.07	.10	.39	
When pointing to him/her one aspect, s/he is able to come back with three other aspects; is able to come up with the whole picture given limited information	-.17	**.52**	.26	-.16	.33	-.12	-.04	.50	
Is highly observant	.20	**.48**	-.10	-.01	.18	.38	-.09	.56	
Is able to grasp the fundamental structure and important elements of complex matters	.00	**.47**	.31	-.04	-.02	.16	-.01	.51	
3. Self-Regulatory Ability									.89
Knows what s/he wants and how to pursue what is suitable to him/herself	-.09	.02	**.68**	.00	.05	.03	-.05	.45	
Knows when to advance and when to draw back	.20	-.22	**.59**	.03	-.09	.29	-.03	.58	
Is able to think calmly when facing an urgent and dangerous situation	.12	.23	**.56**	-.22	-.15	.06	.08	.56	
Is able to make good use of all kinds of resources	-.17	.11	**.56**	.13	.10	-.02	-.10	.38	
Once he/she has made up his/her mind, does not give up his/her decisions when facing others' criticism	-.06	-.02	**.55**	.10	-.16	.31	-.14	.40	
Thinks clearly: knows the appropriate time and place for his/her actions	.06	.26	**.53**	-.13	.08	-.17	-.21	.41	
Has a plan for the future and carries out the plan rationally and methodically	.06	.17	**.52**	-.16	.01	-.01	.05	.42	
Works very hard and is willing to work hard	.03	-.27	**.52**	-.10	-.04	.19	.28	.40	
Has confidence in him/herself; is sure of him/herself and of his/her own worth	.02	.13	**.50**	-.15	.11	.04	.04	.42	
Is capable of self-actualization; can fulfil both his/her material and emotional desires	.20	-.29	**.46**	-.01	.16	-.16	.11	.33	
Knows the meaning and purpose of his/her life and has his/her own philosophy of life	-.07	-.10	**.46**	.06	.14	.34	.16	.48	
Is able to be forceful and decisive	.28	-.12	**.45**	-.01	-.08	-.11	.16	.36	
Does things diligently and actively	.21	-.22	**.45**	-.06	.12	-.02	.15	.36	
Is able to make meaningful connections out of apparently unrelated things	-.12	.26	**.44**	.06	.20	-.11	-.17	.37	
Is efficient; does not procrastinate	.03	.07	**.42**	.08	.04	-.02	.01	.25	
Possesses expertise of a certain domain of knowledge	-.18	.23	**.41**	.11	-.05	.14	.13	.41	
Is able to express his/her own ideas and opinions well	.24	.29	**.40**	-.16	-.09	-.09	.10	.47	
Makes good use of time and knows how to manage time well	.10	.33	**.40**	-.17	-.28	.08	-.08	.39	
4. Intellectual Detachment									.85
Focuses too much on unnecessary details	.13	-.17	-.01	**.67**	.01	-.10	-.04	.40	
Is lonesome; is easily misunderstood and has more difficulties finding friends who really understand him/her	-.07	-.21	.06	**.64**	-.03	.12	.02	.37	
Likes to think quietly, day-dream, or be lost in thinking	.08	-.08	-.10	**.61**	-.02	.06	-.03	.32	
Puts his/her interests first	-.05	-.03	.10	**.60**	-.09	-.15	.03	.44	
Thinks that s/he is very intelligent and is arrogant and proud	.00	-.02	-.02	**.59**	-.19	-.20	.20	.56	
Thinks too much, worries easily	.06	-.28	-.02	**.59**	.01	.10	.03	.31	
Is often quiet in conversation, but talks at length about the topics which interest him/her	-.04	.17	-.31	**.58**	-.03	.32	.10	.48	
Is sensitive	.16	-.01	.04	**.47**	.30	-.03	-.04	.36	
Has a comprehensive view of the world's situation and can describe it in a few sentences	.30	.23	.03	**.46**	.21	.03	-.05	.53	
Does not take opinions of others easily; insists on his/her own ideas	-.20	.04	.05	**.45**	-.09	-.02	.33	.47	

Factor	1	2	3	4	5	6	7	h^2	α
Occasionally draws excessive attention to self	-.02	.23	-.05	**.45**	-.02	-.15	.15	.41	
Is diligent in finding out the roots or the causes of everything; enjoys questioning	-.04	.17	-.07	**.43**	.21	.14	-.05	.33	
Likes to argue and is adept in argument and debate	.04	.36	-.13	**.41**	-.18	-.23	.09	.50	
5. Intrapersonal Intelligence									.50
Is able to discern the nature of life and has a deep understanding of some profound philosophy of life	.32	-.18	.16	.12	**.58**	-.15	.04	.55	
Thinks analytically and is able to think matters through from all possible angles	-.02	.12	.18	.10	**.57**	-.04	.07	.48	
Thinks too much, worries easily	-.02	-.01	.33	-.03	**.51**	-.07	.04	.41	
Does not necessarily have wisdom	.12	-.19	.10	.27	**-.45**	-.05	.06	.28	
Knows him/herself well; has good self-understanding	.03	.03	.39	-.12	**.45**	.06	.10	.55	
6. Intellectual Self-Effacement									.76
Is able to accept challenges and is not afraid of difficulties	-.10	.10	.27	-.10	-.04	**.49**	.21	.43	
Has correct values and judgments, which are immune to external influences	.04	.00	.22	-.16	.13	**.49**	.27	.55	
Is humble; is able not to take pride in his/her talent(s)	.36	.00	-.06	-.09	-.15	**.46**	.13	.39	
Knows there is always a more able person out there, and does not deem him/herself as intelligent enough	.25	-.15	.12	.03	.03	**.43**	-.01	.40	
Is willing to help others and knows how to do it appropriately	.39	-.20	.17	.01	-.09	**.41**	.05	.49	
7. Exceptional Performance									.55
Is able to follow his/her heart's desires without violating moral principles	.16	-.08	-.21	.03	.24	.36	**.49**	.43	
Does things relatively more smoothly; experiences fewer obstacles or challenges	-.01	.08	.07	.14	.01	-.01	**.49**	.36	
Is usually given more responsibility; has greater workload; works more	.22	.13	-.13	-.01	-.04	.32	**.47**	.37	
Has good grades at school	-.21	.30	.05	.02	.17	-.21	**.43**	.48	

Note. Salient coefficients ($\geq |.40|$) are in bold. Scale items taken from the Taiwanese-Chinese Views of Intelligence Questionnaire by S. Yang, & R. J. Sternberg, 1997.

Table 4.5 Factor Inter-correlations for Seven-Factor Structure of Taiwanese-Chinese Immigrants' Conceptions of Intelligence for the Taiwanese-Chinese Views of Intelligence Questionnaire: Frequency Ratings

Factor	1	2	3	4	5	6	7
1. Interpersonal Intelligence	—						
2. General Cognitive Ability	.07	—					
3. Self-Regulatory Ability	.44	.47	—				
4. Intellectual Detachment	-.13	.34	.15	—			
5. Intrapersonal Intelligence	.33	.15	.29	.03	—		
6. Intellectual Self-Effacement	.39	.11	.32	-.05	.44	—	
7. Exceptional Performance	.06	.30	.26	.18	-.04	-.12	—

4.3.2.2 EFA of Importance Ratings of the Taiwanese-Chinese Views of Intelligence Questionnaire

For importance ratings of TCVI Questionnaire, one item ("has ideals and is able to motivate him/herself to achieve them") was eliminated from further analysis since it did not correlate at least moderately ($r \geq .30$) with at least two other items in the questionnaire. Cronbach's α for the rest of the set was .97. Based on the results of parallel analysis, it was determined that five factors should be extracted. The visual scree was marked by a more pronounced break at three factors. Consequently, three- through six-factor solutions were examined. When six factors were extracted, there were only two salient pattern coefficient loadings on the sixth factor. Following Gorsuch's (1988) recommendation that extraction be stopped and only the major factors retained when singlet or doublet factors are first encountered, the five-factor solution therefore appeared most appropriate.

As shown in Table 4.6, the factors were labelled: (1) *Inter- & Intra-personal Intelligence*; (2) *Effective Leadership*; (3) *General Cognitive Ability*; (4) *Intellectual Detachment*; and (5) *Exceptional Performance*, and accounted, respectively for 25.70%, 7.02%, 5.00%, 2.71%, and 2.04% of the total variance (42.48%) after promax rotation. Pattern coefficients and scale reliabilities for the six-factor solution are also presented in Table 4.6. Factor inter-correlations are presented in Table 4.7; the magnitude of correlations obtained ranged from .05 to .64, with the strongest correlation .64 between *Inter- & Intra-personal Intelligence* and *Effective Leadership*.

The first factor (*Inter- & Intra-personal Intelligence*) described engagement in social interactions and intrapersonal reflection; it included items such as "is willing to help others and knows how to do it appropriately," "accepts different opinions and does

not insist on his/her own ideas," and "is able to help him/herself and others; is able to relieve his/her and others unhappiness."

The second factor (*Effective Leadership*) expressed the ability to manage others, tasks and oneself and contained attributes such as "knows people well and is able to put the right person in the right position," "evaluates problems in great depth and details," and "is capable of self-actualization; can fulfil both his/her material and emotional desires."

The third factor (*General Cognitive Ability*) described general cognitive capacities and included descriptions such as "brain is always active and flexible," "is full of ideas and insights," and "make quick responses."

The fourth factor (*Intellectual Detachment*) described withdrawal, detachment and arrogance and included items such as "does not take opinions of others easily; insists on his/her own ideas," "focuses too much on unnecessary details," and "thinks that s/he is very intelligent and is arrogant and proud."

The fifth factor (*Exceptional Performance*) described the better performance outcome of an intelligent individual and contained items such as "does everything better than others and more easily earns praise," "has good grades at school," and "does things relatively more smoothly; experiences fewer obstacles or challenges."

Table 4.6 Pattern Coeffieients, Communalities, and Reliabilities for the Seven-Factor Structure of Taiwanese-Chinese Immigrants' Conceptions of Intelligence for the Taiwanese-Chinese Views of Intelligence Questionnaire: Importance Ratings

Factor	1	2	3	4	5	h^2	α
1. Inter- & Intra-personal intelligence							.96
Is willing to help others and knows how to do it appropriately	**.90**	-.07	-.18	.01	-.07	.67	
Accepts different opinions and does not insist on his/her own ideas	**.87**	-.12	.01	-.12	.00	.65	
Is able to help him/herself and others; is able to relieve his/her and others' unhappiness	**.84**	-.11	.08	.03	-.01	.64	
Is able to respect others	**.83**	.02	-.08	-.09	-.13	.66	
Lively; optimistic	**.81**	.01	-.03	.11	-.01	.67	
Knows the appropriate ways to treat others and deal with daily matters	**.80**	-.03	.04	-.19	.01	.65	
Works very hard and is willing to work hard	**.79**	-.06	-.03	-.07	-.05	.55	
Brings about joy and harmony; uses his/her wisdom to benefit self, others, and the entire socicty	**.76**	.05	-.06	-.19	.08	.65	
Knows there is always a more able person out there, and does not deem himself/herselfas intelligent enough	**.74**	-.10	-.10	-.08	.14	.48	
Is humble; is able not to take pride in his/her talent(s)	**.73**	.13	-.23	-.02	.00	.47	
Knows how to enjoy being alone and how to enjoy oneself	**.72**	.03	.01	.11	-.08	.56	
Has inner serenity and is able to remain peaceful when facing with all kinds of people and matters, whether they are likeable or not	**.72**	-.01	-.08	-.14	.05	.49	
Is good at interacting with people and has good interpersonal relationships	**.69**	.07	-.06	.01	.10	.56	
Is generous; does not try to benefit from every interaction	**.68**	.17	-.16	.03	-.08	.57	
Does things diligently and actively	**.68**	.01	.15	.04	.05	.59	
Earns others' affection easily and is well-liked	**.66**	.02	-.06	.18	.16	.55	
Worries before the whole world begins to worry, and rejoiees only after the whole world has rejoiced	**.66**	-.20	.03	.30	.04	.44	
Has penetrating understanding of the dynamics of human relationships; is perceptive about human relationships	**.59**	.25	-.10	.03	.03	.56	
Does not show off his/her "petty intelligenee;" does not employ his/her intelligence for petty purposes	**.59**	-.08	-.26	-.06	.24	.34	
Is good at understanding and empathizing with otbers' feelings	**.58**	.34	.02	.05	-.36	.71	
Knows the meaning and purpose of his/her life and has his/her own philosophy of life	**.58**	.10	.13	-.03	.04	.50	
Is able to accept challenges and is not afraid of difficulties	**.55**	-.06	.20	.04	.11	.42	
Is kind and compassionate: treats others with politeness, warmth, and understanding	**.54**	.20	-.11	-.05	-.16	.42	
Knows when to advance and when to draw back	**.54**	.25	-.10	-.09	.19	.56	
Is respected and has higher social status than others	**.53**	-.14	-.07	.27	.37	.48	
Is able to act meekly or assertively, whatever is required to accomplish his/her goal in the immediate circumstance	**.53**	.29	-.07	.02	.06	.54	
Once he/she has made up his/her mind, does not give up his/her decisions when facing others' criticism	**.52**	-.16	.12	.10	.34	.44	
Is able to enjoy his/her life	**.52**	.28	-.03	-.02	-.10	.50	
Knows to learn from the strengths of others	**.52**	.06	-.01	-.20	.30	.48	
Is able to learn from past mistakes and does not repeat the same mistakes	**.52**	.01	.19	-.26	.07	.43	
Is able to prioritize and does things in a well-organized manner	**.51**	-.04	.35	-.12	.12	.52	
Has a higher IQ than others	**-.48**	-.07	.39	.15	.35	.48	

Factor	1	2	3	4	5	h^2	α
Has correct values and judgments, which are immune to external influences	.47	.36	-.08	-.10	.11	.57	
Does not care about others' opinions of him/her, and does not follow common trends	.46	-.19	-.06	.16	.26	.25	
Is sensitive	.45	-.24	.20	.35	-.09	.32	
Is able to think calmly when facing an urgent and dangerous situation	.44	.23	.00	-.12	.26	.52	
Makes good use of time and knows how to manage time well	.42	.15	.20	-.27	.16	.51	
Has greater sense of accomplishment	.42	.09	.05	.19	.26	.45	
Thinks clearly: knows the appropriate time and plaee for his/her actions	.41	.11	.19	-.09	.28	.50	
Has a elear sense of right and wrong	.40	.38	-.14	-.07	.14	.49	
2. Effective Leadership							.92
Knows people well and is able to put the right person in the right position	.14	**.69**	.09	-.04	-.11	.65	
Evaluates problems in great depth and details	-.08	**.67**	-.04	-.05	.01	.38	
Is capable of self-actualization; can fulfil both his/her material and emotional desires	.02	**.65**	-.07	.19	-.02	.44	
Thinks analytically and is able to think matters through from all possible angles	-.12	**.61**	.10	-.02	.09	.39	
Has leadership abilities	.18	**.60**	-.09	.13	-.18	.48	
Is able to employ his/her wisdom to solve problems before they emerge	.00	**.55**	.13	-.04	-.27	.35	
Thinks long term rather than short term	.26	**.51**	.23	-.14	-.17	.62	
Knows him/herself well; has good self-understanding	.28	**.51**	-.03	-.11	.00	.50	
Does things quickly; acts precisely and decisively	.05	**.51**	.09	.16	.12	.43	
Knows how to build up his/her reputation and interpersonal network	.27	**.50**	.02	.11	-.06	.50	
Is able to satisfy different expectations when carrying out everyday tasks	.33	**.50**	.04	-.03	-.04	.58	
Is able to predict future developments by analyzing current circumstances	.07	**.48**	-.03	-.04	.06	.29	
Is able to follow his/her heart's desires without violating moral principles	.25	**.48**	-.13	.17	-.07	.42	
Has relatively more friends	.31	**.43**	.07	.19	-.22	.50	
Is able to make good use of all kinds of resources	.05	**.40**	.18	-.09	-.02	.28	
Knows what s/he wants and how to pursue what is suitable to him/herself	.24	**.40**	.16	-.14	.16	.53	
Possesses wisdom	.04	**.40**	-.02	-.02	.14	.22	
Has a sense of humour	.32	**.40**	-.04	.11	-.23	.41	
3. General Cognitive Ability							.87
Brain is always active and flexible	.01	-.11	**.70**	-.14	.10	.50	
Is full of ideas and insights	.04	.08	**.70**	.01	-.14	.51	
Makes quick responses	.03	-.14	**.59**	.01	.05	.33	
Thinks more, explores problems that have hitherto been unanswered	-.24	.00	**.59**	-.05	-.03	.31	
When pointing to him/her one aspect, s/he is able to come back with three other aspects; is able to come up with the whole picture given limited information	-.19	.03	**.57**	-.05	.13	.36	
Has creativity	-.02	.21	**.57**	-.05	-.33	.39	
Possesses a special talent	.15	-.26	**.55**	.04	.14	.35	
Is diligent in finding out the roots or the causes of everything; enjoys questioning	-.13	-.02	**.52**	.28	-.09	.33	
Is able to concentrate very well doing the things s/he likes	.00	.19	**.52**	-.05	.02	.40	
Has strong intelleetual ability, especially for some abstract diseiplines like math and physics	-.22	-.18	**.49**	-.08	.17	.29	
Is very capable of organizing things	.29	.04	**.49**	-.06	.02	.44	
Reacts swiftly and flexibly to sudden external changes	-.06	.19	**.45**	-.06	-.05	.26	

Factor	1	2	3	4	5	h^2	α
Is able to grasp the fundamental structure and important elements of complex matters	.07	.22	**.45**	-.17	-.01	.37	
Is highly observant	.15	.10	**.44**	.07	.00	.33	
Has strong learning ability; learns things faster than others	-.36	.03	**.43**	-.05	.24	.32	
Has a good memory, does not forget the things s/he once sees	-.17	-.09	**.42**	-.05	.08	.18	
Adapts well to different environments	.29	.07	**.42**	.03	-.04	.38	
4. Intellectual Detachment							.87
Does not take opinions of others easily; insists on his/her own ideas	-.26	.21	-.06	.71	.09	.54	
Focuses too much on unnecessary details	-.10	.03	.09	**.67**	-.18	.47	
Likes to think quietly, day-dream, or be lost in thinking	-.10	.17	-.13	**.63**	.09	.42	
Likes to argue and is adept in argument and debate	-.35	.23	.05	**.63**	.26	.57	
Thinks that s/he is very intelligent and is arrogant and proud	-.28	.23	-.14	**.62**	.08	.43	
More easily beeome the target of jealousy and resentment than others	.15	-.13	-.13	**.61**	.18	.43	
Puts his/her interests first	-.13	.24	-.13	**.61**	.24	.48	
Is lonesome; is easily misunderstood and has more difficulties finding friends who really understand him/her	.12	-.06	-.13	**.60**	-.02	.37	
Occasionally draws exeessive attention to self	.06	-.15	.12	**.58**	.15	.41	
Does not necessarily have wisdom	.10	-.19	-.06	**.47**	-.12	.26	
Is often quiet in conversation, but talks at length about the topics whieh interest him/her	-.04	-.14	.39	**.47**	-.03	.38	
Is overwhelmed by his/her outstanding intelligence and uses intelligence for harmful purposes	-.02	-.07	.06	**.45**	.17	.26	
Thinks too much, worries easily	.34	-.22	.11	.44	-.26	.33	
5. Exceptional Performanee							.76
Does everything better than others and more easily earns praise	.17	-.11	.03	.15	**.62**	.47	
Has good grades at school	.13	-.15	.10	.11	**.51**	.33	
Does thing relatively more smoothly; experiences fewer obstacles or challenges	.12	.05	-.13	.37	**.46**	.40	
Answers questions quickly	-.01	-.16	.20	.36	**.44**	.43	

Note. Salient coefficients ($\geq |.40|$) are in bold. Scale items taken from Taiwanese-Chinese Views of Intelligence Questionnaire by S. Yang, & R J. Sternberg, 1997.

Table 4.7 Factor Inter-correlations for Seven-Factor Structure of Taiwanese-Chinese Immigrants' Conceptions of Intelligence for the Taiwanese-Chinese Views of Intelligence Questionnaire: Importance Ratings

Factor	1	2	3	4	5
1. Inter- & Intra-personal Intelligence	—				
2. Effective Leadership	.64	—			
3. General Cognitive Ability	.30	.38	—		
4. Intellectual Detachment	.08	.05	.12	—	
5. Exceptional Performance	.19	.26	.35	.10	—

4.4 Correlational Analysis

Participants who did not complete the Vancouver Index of Acculturation (VIA) and who identified their heritage culture other than Taiwanese-Chinese (e.g., American culture, Canadian culture) were excluded from correlational analysis. The sample was reduced from 171 to 167 for frequency ratings and from 169 to161 for importance ratings on the TCVI Questionnaire. For both ratings of the questionnaire, no statistically detectable difference ($p \leq .05$) was found between the reduced sample and the original sample in terms of the mean Heritage Score; mean Mainstream Score; mean age; gender ratio; and ratio of years living in Canada.

4.4.1 Correlations between Views of Intelligence and Identification with Taiwanese-Chinese and Canadian Cultures

For both ratings, individual factor scores were calculated for each participant in the sample using the Bartlett method with SPSS 16.0 (2007). Pearson correlations were calculated between the factor scores and the Taiwanese-Chinese heritage and Canadian mainstream subscale scores of VIA.

As shown in Table 4.8, the following correlations were statistically detectable from frequency ratings of the TCVI Questionnaire: *Interpersonal Intelligence* and mainstream identification ($r = .18$, $p < .05$); *General Cognitive Ability* and heritage identification ($r = .18$. $p < .05$); *Self-Regulatory Ability* and heritage identification ($r = .19$, $p < .05$); *Intrapersonal Intelligence* and heritage identification ($r = .17$, $p < .05$); and *Intellectual Self-Effacement* and mainstream identification ($r = .24$, $p < .01$).

As shown in Table 4.9, the following correlations were statistically detectable from importance ratings of the TCVI Questionnaire: *Effective Leadership* and heritage

identification ($r = .16$, $p < .05$); *General Cognitive Ability* and heritage identification ($r = .17$, $p < .05$); and *Exceptional Performance* and heritage identification ($r = .32$, $p < .01$).

Table 4.8 Correlations between Factors of Frequency Ratings and Subscales of Vancouver Index of Acculturation (Ryder et al., 2000)

	VIA Subscale	
Factor	Heritage Score	Mainstream Score
1. Interpersonal Intelligence	.08	.19*
2. General Cognitive Ability	.18*	-.09
3. Self-Regulatory Ability	.19*	.04
4. Intellectual Detachment	.12	.01
5. Intrapersonal Intelligence	.17*	.14
6. Intellectual Self-Effacement	.10	.24**
7. Exceptional Performance	-.03	-.07

Note. *$p < .05$. **$p < .01$.

Table 4.9 Correlations between Factors of Importance Ratings and Subscales of Vancouver Index of Acculturation (Ryder et al., 2000)

	VIA Subscale	
Factor	Heritage Score	Mainstream Score
1. Inter- & Intra-personal Intelligence	-.01	-.08
2. Effective Leadership	.16*	-.02
3. General Cognitive Ability	.17*	.02
4. Intellectual Detachment	.03	-.02
5. Exceptional Performance	.32**	.07

Note. *$p < .05$. **$p < .01$

4.5 Summary

The analyses presented in this chapter produced several important findings. First, the components that reflect implicit intelligence obtained in Yang and Sternberg (1997b) using samples of Taiwanese-Chinese nationals living in Taiwan were only partially supported in the present study that used a sample of Taiwanese-Chinese immigrant adults living in Canada. From the PCA of both ratings, components labelled as *General*

Cognitive Ability, *Interpersonal Intelligence* and *Intrapersonal Intelligence* in Yang and Sternberg (1997b) were also obtained in the present study. However, components labelled as *Intellectual Self-Promotion*, *Intellectual Self-Effacement*, *Intellectual Self-Assertion*, and *Intellectual Enjoyment* in Yang and Sternberg (1997b) were not identified in the present study using the PCA. New components found from both ratings in the present study were *Intellectual Detachment*, *Enthusiastic Learning*, *Analytical Thinking* and *Exceptional Performance*. A comparison of the components that emerged in the present study as well as those from Yang and Sternberg (1997b) is shown in Table 4.10.

Second, the results of EFA showed that the factor structures of frequency ratings and importance ratings were similar but not identical. The factors that emerged from both frequency and importance ratings of the TCVI Questionnaire were: *Interpersonal intelligence*; *General Cognitive Ability*; *Intrapersonal Intelligence; Intellectual Detachment*; and *Exceptional Performance*. While *Intellectual Self-Effacement* and *Self-Regulatory Ability* emerged from frequency ratings, these two factors did not emerge from importance ratings. On the other hand, while *Effective Leadership* emerged from importance ratings, it did not emerge from frequency ratings. A comparison of the factors emerged from frequency and importance ratings is also presented in Table 4.10.

Third, correlations between views of intelligence as measured by factor scores on each rating of the TCVI Questionnaire and Taiwanese-Chinese immigrants' identification with Canadian mainstream culture and Taiwanese-Chinese heritage culture as estimated by VIA were variable and ranged from not statistically detectable to .32 ($p \leq .01$). In the following chapter, these findings will be interpreted and discussed in detail.

Table 4.10 Comparison Table of Factors (Components) Underlying Taiwanese-Chinese Nationals' and Taiwanese-Chinese Immigrants' Conceptions of Intelligence

	Taiwanese-Chinese Nationals (Yang & Sternberg, 1997b)		Taiwanese-Chinese Immigrants Living in Canada			
Factors/ Components	PCA of Frequency Rating	PCA of Importance Rating	PCA of Frequency Rating	PCA of Importance Rating	EFA of Frequency Rating	EFA of Importance Rating
General Cognitive Ability	1	4	2	4	2	3
Interpersonal Intelligence	2	1*	1	1*	1	1*
Intrapersonal Intelligence	3	1*	3	1*	5	1*
Intellectual Self-Promotion	4					
Intellectual Self-Effacement	5				6	
Intellectual Self-Assertion		3				
Intellectual Enjoyment		2				
Effective Leadership						2
Self-Regulatory Ability					3	
Intellectual Detachment			4	2	4	4
Exceptional Performance				3	7	5
Enthusiastic Learning			5			
Analytical Thinking			6			

Note PCA = Principal Components Analysis. EFA = Exploratory Factor Analysis. 1 = first component/factor. 2 = second component/factor. 3 = third component/factor. 4 = fourth component/factor. 5 = fifth component/factor. 6 = sixth component/factor. 7 = seventh component/factor. * = factor/component emerged as a single component (i.e., Inter- & Intra-personal Intelligence).

CHAPTER 5: DISCUSSION

The present study investigated the constructs that underlie implicit theories of intelligence held by Taiwanese-Chinese immigrant adults living in Canada. Another issue that was explored in some detail concerned whether individual variation in the structure of implicit theories of intelligence among Taiwanese-Chinese immigrants is associated with acculturation to Canadian mainstream culture. Discussion of the major findings is organized into three main sections that parallel the research questions posed in the introduction. The first section discusses the findings related to the nature of Taiwanese-Chinese immigrants' conceptions of intelligence. The second section examines whether the views of intelligence of Taiwanese-Chinese immigrants are different from those found among Taiwanese-Chinese nationals in Yang and Sternberg (1997b). The final section discusses the relation between Taiwanese-Chinese immigrants' implicit theories of intelligence and their identification with Taiwanese-Chinese heritage culture and Canadian mainstream culture. As well, implications and limitations of the study are presented.

5.1 How Do Taiwanese-Chinese Immigrants Living in Canada View Intelligence?

Findings from exploratory factor analysis (EFA) of frequency ratings of the items on Taiwanese-Chinese Views of Intelligence (TCVI) Questionnaire showed that Taiwanese-Chinese immigrants in Canada believed that an intelligent person is one who frequently displays harmonious engagement in social interactions (i.e., *Interpersonal*

Intelligence); shows cross-domain learning capacities and analytical thinking (i.e., *General Cognitive Ability*); regulates one's behaviours for goal attainment (i.e., *Self-Regulatory Ability*); displays independence and focus on the self (i.e., *Intellectual Detachment*); understands oneself and one's life (i.e., *Intrapersonal Intelligence*); conducts oneself in a humble manner (i.e., *Intellectual Self-Effacement*); and achieves better task outcomes (i.e., *Exceptional Performance*).

A similar, but not identical, factor structure emerged when importance ratings of the same items on the TCVI Questionnaire were submitted to EFA. Taiwanese-Chinese immigrants in Canada considered engagement in social interactions and comprehensive self-understanding (i.e., *Inter- and Intra-personal Intelligence*); the capacity to manage others, tasks and oneself (i.e., *Effective Leadership*); cross-domain learning capacities and analytical thinking (i.e., *General Cognitive Ability*); independence and focus on the self (i.e., *Intellectual Detachment*); and achievement of better outcome (i.e., *Exceptional Performance*), important in defining an intelligent person.

Several constructs that underlie Taiwanese-Chinese immigrants' implicit theories of intelligence have been discussed previously in the literature. For instance, *Interpersonal Intelligence*, which accounted for greater than 20% of the explained variance in responses to both ratings of the TCVI Questionnaire, has been continually identified as an important component of implicit theories of intelligence in Asian samples (e.g., Lim et al., 2002; Nevo & Khader, 1995; Swami et al., 2008; Yang & Sternberg, 1997b). Such emphasis on interpersonal intelligence as revealed in the present study also reflects Chinese cultural emphasis on interpersonal relationship and group harmony (Tsai et al., 2000). *General Cognitive Ability*, a common component of implicit theories of

intelligence found among American, European, Asian and African samples (Berg & Sternberg, 1992; Booth, 2003; Kurtz-Costes et al., 2005; Lim et al., 2002; Nevo & Khader, 1995; Sternberg, 1981, 1985; Yang & Sternberg, 1997b), accounted for the greatest proportion of explained variance, after the variance due to *Inter- and Intrapersonal Intelligence* as well as *Effective Leadership* was taken into account.

Some of the constructs are also common to several Western explicit theories of intelligence. For instance, *Intrapersonal Intelligence*, which denotes the knowledge of oneself and one's life, and *Interpersonal Intelligence*, which describes the capacitates to respond appropriately to others, are also illustrated in Gardner's theory of multiple intelligences (1983; 1987). *General Cognitive Ability* is consistent with the general cognitive factor, or *g*, first proposed by Spearman (1970) and later incorporated into theories of intelligence proposed by Cattell (1971), Horn (1994), and Hunt (2000).

Perhaps the most interesting factors that emerged from both frequency and importance ratings made by Taiwanese-Chinese immigrants are *Exceptional Performance* and *Intellectual Detachment*. *Exceptional Performance* signifies that intelligent individuals outperform others on various tasks. This increased performance may result from an ability to associate and integrate information in ways that lead to deeper understandings and knowledge. The ability to formulate deep understanding from experience is valued in discussions in Confucian philosophy as illustrated in the following excerpt from *The Analects*:

> The Master said to Tzu-kung, "Who is the better man, you or Hui?" "How dare I compare myself with Hui? When he is told one thing he understands ten. When I am told one thing I understand only two." The Master said, "You are not as good as he is. Neither of us is as good as he is." (5.9)

Intellectual Detachment, which occurs when one experiences solitude and overly focuses on oneself almost to the point of isolation, also appears to be unique to Taiwanese-Chinese immigrants' conceptions of intelligence. This factor reflects that for Taiwanese-Chinese immigrants, intelligence is multifaceted. Intelligence incorporates both positive and negative aspects. For example, an intelligent individual is one who has abilities to interact socially yet shows stubbornness and detachment from others. In early Chinese texts, such as the *Shijing*, intelligence can have a negative connotation, for it can refer to fragmented knowledge, deception, arrogance, isolation or hypocrisy (Raphals, 1992; Tu, 1085). Several Chinese proverbs also reflect such negative connotations. For example, *cong ming fan bei cong ming wu* (聰明反被聰明誤) Implies that intelligent individuals can be mistaken and blinded by their own intelligence, and *zhi zuo cong ming* (自作聰明) means that those who see themselves as intelligent can insist on their own ideas and are unable to accept different voices.

Besides the aforementioned factors that emerged from both frequency and importance ratings, there is also a discrepancy between the factor structures of frequency and importance ratings. First, while Taiwanese-Chinese immigrants considered *Effective Leadership* an important aspect of intelligence, not all intelligent individuals frequently display *Effective Leadership*. *Effective Leadership* reflects the Confucian central concept of *junzi*, an ideal person "whose cultivated character embodies the virtues of benevolence and whose acts are in accordance with rightness" (Yang & Sternberg, 1997a, p. 103). *Junzi*'s knowledge of himself and character (*ren*) as well as thinking capacities (*zhi*) enable him to gain control over events and to "rule a country well by putting a person of character in the suitable positions" (Yang & Sternberg, 1997a, p. 104), which describes

the wisdom of an ideal sage-ruler. Therefore, Confucian intelligence as shown in the concept of *junzi* is a moral virtue that typically involves not only deep understandings of matters but also "the ability to transform and regulate the social order" (Raphals, 1992, p.16). However, because *Effective Leadership* is only be displayed by those who not only have *zhi* but also cultivate their character to acquire benevolence (i.e., *junzi*) and because not all those who are intelligent are qualified to be *junzi*, the capabilities of managing others, tasks and themselves (i.e., *Effective Leadership*) therefore may not been seen as an attribute frequently displayed. Even Confucius questioned himself whether he had achieved benevolence and could be called as a sage (or a *junzi*): "In unstinted effort I can compare with others, but in being a practising gentleman I have had, as yet, no success." (*The Analects*, 7.33) and "How dare I claim to be a sage or a benevolent man?" (*The Analects*, 7.34)

Second, while Taiwanese-Chinese immigrants believed that intelligent individuals frequently display *Self-Regulatory Ability* and *Intellectual Self-Effacement*, these constructs were insufficient to define an intelligent individual. In other words, Taiwanese-Chinese immigrants did not deem self-regulatory ability and self-effacement important in defining intelligence, but they believed that intelligent individuals frequently self-regulate their behaviours and behave in a self-effacing manner about their intelligence. *Self-Regulatory Ability* and *Self-Effacement* reflect the Taoist tradition. In Taoism, intelligent individuals are perceptive and responsive to the changes in circumstances and thus constantly regulate themselves to act in accordance to achieve their goals. Such ability can be particularly useful for Taiwanese-Chinese immigrants who need to re-establish their life in a novel cultural context. Research has indicated that

immigrants who demonstrate self-monitoring of their own actions and self-presentations tend to demonstrate better adjustment (Kosic, 2006; Montagliani & Giacalone, 1998). As for *Self-Effacement*, since true intelligence in Taoism is perceived to be not suitable for verbal formulation and should be concealed in namelessness to avoid the potential distortion of its real meaning (Raphals, 1992), an intelligent individual (or a sage) typically performs "the opposite of the action that results from the performance" (Raphals, 1992, p.81) and " put himself in the background yet finds himself in the foreground" (*Tao Te Ching*, 7) to demonstrate intelligence in a self-effacing manner.

5.2 Are Taiwanese-Chinese Immigrants' Conceptions of Intelligence Different from Those Held by Taiwanese-Chinese Nationals As Reported by Yang and Sternberg (1997b)?

The present study replicated Yang and Sternberg's (1997b) study of implicit theories of intelligence among Taiwanese-Chinese nationals with a sample of Taiwanese-Chinese immigrant adults living in Canada. As in Yang and Sternberg (1997b), principal components analysis (PCA) was conducted. Six components, namely *Interpersonal Intelligence*, *General Cognitive Ability*, *Intrapersonal Intelligence*, *Intellectual Detachment*, *Enthusiastic Learning* and *Analytical Thinking* were generated from frequency ratings of the items on the TCVI Questionnaire. Four related but not identical components, namely *Inter- and Intra-personal Intelligence*, *Intellectual Detachment*, *Exceptional Performance*, and *General Cognitive Ability*, were generated from importance ratings of the same items on the TCVI Questionnaire.

As shown in Table 4.10, Taiwanese-Chinese Immigrants, like Taiwanese-Chinese nationals in Yang and Sternberg (1997b), continued to value the perceived frequency and importance of general cognitive ability, interpersonal intelligence and intrapersonal

intelligence in defining intelligence. In particular, *Inter- and Intrapersonal Intelligence* was the most important in defining an intelligent individual in both studies; over 20% of the variance of the component structure obtained from the PCA of importance ratings in Yang and Sternberg's (1997b) and the present study was attributed to this component. This finding is consistent with previous findings that non-Western samples tend to place a greater emphasis on interpersonal skills and social competence when defining intelligence (e.g., Grigorenko et al., 2001; Lim et al., 2002; Swami et al., 2008; Yang & Sternberg, 1997b). However, even though there were commonalties between the components generated in the present study and those in Yang and Sternberg (1997b), there were significant differences.

First, among the common components (i.e., *General Cognitive Ability*, *Interpersonal Intelligence*, and *Intrapersonal Intelligence)*, Taiwanese-Chinese nationals in Yang and Sternberg (1997b) believed that general cognitive ability is most frequently displayed by an intelligent individual while Taiwanese-Chinese immigrants in the present study emphasized on interpersonal intelligence. One possible explanation for this is that interpersonal intelligence may play an important role for Taiwanese-Chinese immigrant adults who are adapting to a new cultural context in Canada. Interpersonal intelligence allows intelligent individuals to maintain healthy, harmonious social relationships not only with peers from their country of origin but also with peers in the new culture, which in turn helps to ease the process of acculturation (Beiser, 1999; Ehrensaft & Tousignant, 2006; Noels & Berry, 2006). It therefore seems reasonable that Taiwanese-Chinese immigrants may shift their views on the importance of interpersonal intelligence as they use it to cope with their life in a new country.

Second, Taiwanese nationals in Yang and Sternberg (1997b) believed that an intelligent person displays traits of *Intellectual Self-Promotion* and *Intellectual Self-Effacement*. However, Taiwanese-Chinese immigrants in the present study did not share this view. It is also important to note that most higher loading constituent attributes of these two components in Yang and Sternberg (1997b) (e.g., "puts his/her interest first," "Thinks that s/he is very intelligent and is arrogant and proud," "focuses too much on unnecessary details," and "is lonesome; is easily misunderstood and has more difficulties finding friends who really understand him/her") were the constituent attributes of a single component, *Intellectual Detachment*, in the present study. This difference may be due to: (1) the experience of acculturation which may bring changes in how Taiwanese-Chinese immigrants define intelligence; (2) a recent transformation in Taiwanese-Chinese conceptions of intelligence that has not been researched nor reported in the literature; or (3) that even though Taiwanese-Chinese immigrants in the present study and Taiwanese-Chinese nationals in Yang and Sternberg (1997b) share the same cultural background, there may be pre-existing differences, such as socioeconomic status and level of education, between Taiwanese-Chinese who decide to immigrate to Canada (i.e., Taiwanese-Chinese immigrants) and Taiwanese-Chinese who stay in Taiwan (i.e., Taiwanese-Chinese nationals), which may influence Taiwanese-Chinese immigrants to perceive the importance and frequency of attributes differently.

Third, while Taiwanese-Chinese nationals in Yang and Sternberg (1997b) believed that *Intellectual Enjoyment* and *Intellectual Self-Assertion* are important in defining an intelligent individual, these two components did not emerge from the analyses of importance ratings for Taiwanese-Chinese immigrants. Again, this difference

may be due to: (1) the experience of acculturation that may bring changes in how Taiwanese-Chinese immigrants define intelligence; (2) a recent transformation in Taiwanese-Chinese conceptions of intelligence that has not been researched nor reported in the literature; or (3) the pre-existing differences between Taiwanese-Chinese immigrants and Taiwanese-Chinese nationals, which may influence Taiwanese-Chinese immigrants to perceive the importance and frequency of attributes differently.

Fourth, unique components emerged from the analyses of both ratings of the questionnaires. Taiwanese-Chinese immigrants also viewed an intelligent individual as one who shows enthusiastic learning and analytical thinking. *Enthusiastic Learning*, which depicts the understanding and enjoyment of learning processes, relates to the key aspects of intelligence in Confucianism. An intelligent individual is conceptualized to be able to understand the need of learning and studying while at the same time enjoying such processes with great enthusiasm. This component also resembles the component "interest in and ability to deal with novelty" in the Berg and Sternberg's (1992) study that both seem to be characterized with a curiosity and enthusiasm in learning new things. On the other hand, *Analytical Ability* characterizes the ability to associate and integrate information to foster deeper understandings and knowledge, which is greatly valued in Confucianism. A possible explanation for the emergence of these two unique factors is that enthusiastic learning and analytical thinking may be crucial for Taiwanese-Chinese immigrant adults living in a new cultural context in Canada. While enthusiastic learning initiates immigrants' curiosity and fosters their learning about the new cultural context (e.g., language, customs and life practices), analytical thinking helps immigrants evaluate and gain a greater understanding about the process of acculturation and their own

wellbeing in the process, which altogether may aid in the process of acculturation and enhance better adaptation to the new context.

Fifth, Taiwanese-Chinese immigrants, unlike the Taiwanese-Chinese nationals in Yang and Sternberg (1997b), viewed exceptional performance as one of the important components in defining an intelligent individual. *Exceptional Performance* emphasizes the outcome aspect of intelligence; intelligent individuals not only perform better but also experience fewer obstacles in their tasks. This component reflects parts of discussions in Confucianism regarding the influence of pre-existing differences in abilities on performance. Some possible explanations of why *Exceptional Performance* did not emerge from the analyses in Yang and Sternberg (1997b) are: (1) the experience of acculturation that may lead Taiwanese-Chinese immigrants to view performance as an important aspect in defining intelligence; (2) a recent transformation in Taiwanese-Chinese conceptions of intelligence that has not been researched or reported in the literature; or (3) the pre-existing differences between Taiwanese-Chinese immigrants and Taiwanese-Chinese nationals, which may impact on how Taiwanese-Chinese immigrants view intelligence.

5.3 Is There an Association between Taiwanese-Chinese Immigrants' Conceptions of Intelligence and Acculturation?

The present study explored the relationship between acculturation (as measured by identification with heritage and mainstream cultures) and conceptions of intelligence. The findings showed that immigrants' conceptions of intelligence are related but weakly to acculturation.

Taking together the results of the correlational analyses of the two ratings (i.e., frequency as well as importance ratings), Taiwanese-Chinese immigrants' identification with Taiwanese-Chinese heritage culture associated positively (though weakly) with *General Cognitive Ability*, *Self-Regulatory Ability*, *Intrapersonal Intelligence*, *Effective Leadership*, and *Exceptional Performance*. These findings were expected since these constructs have either been previously identified as important factors underlying Taiwanese-Chinese conceptions of intelligence or reflected Taiwanese-Chinese philosophical traditions. For instance, *General Cognitive Ability* and *Intrapersonal Intelligence* were also found in Yang and Sternberg's (1997b) study of Taiwanese-Chinese implicit theories of intelligence. While *Self-Regulatory Ability* characterizes a Taoist conceptualization of an intelligent individual, *Effective Leadership* and *Exceptional Performance* reflect aspects of Confucian conceptions of an intelligent individual.

On the other hand, Taiwanese-Chinese immigrants' identification with Canadian mainstream culture associated positively (though weakly) only with *Interpersonal Intelligence* and *Intellectual Self-Effacement.* These findings are somewhat surprising. *Interpersonal Intelligence* is typically emphasized in non-Western conceptions of intelligence (see e.g., Booth, 2003; Lim et al., 2002), and therefore, stronger correlation was not be expected. In addition, *Intellectual Self-Effacement* has only been identified with a Taiwanese-Chinese sample (Yang & Sternberg, 1997b), and therefore it was not expected to correlate with identification with the mainstream culture. There are three possible explanations for such findings. First, these two constructs may underlie implicit theories of intelligence in Canadian culture, but the tools used to measure theories of

intelligence in previous research have not adequately captured these two constructs. Second, as implicit theories, by definition, are highly variable and subject to change over time, these constructs may be a recent transformation, and as such, have not been reported in the literature. Third, an unknown variable may potentially mediate the relationship between these two constructs. For example, the adjustment to the mainstream culture, rather than sole identification with it, may mediate these correlations.

In addition, the present findings showed that Taiwanese-Chinese immigrants' conceptions of intelligence were related to their identification with Taiwanese-Chinese heritage culture, and to a lesser extent with Canadian mainstream culture. There are several possible explanations for these findings. First, because people's conceptions of intelligence are established early on in childhood (Bempechat & London, 1991; Dweck & Elliott, 1983) and that personal beliefs are not easily changed when individuals migrate from one culture to another (Masgoret & Ward, 2006), Taiwanese-Chinese immigrants' conceptions of intelligence may be more closely related to Taiwanese-Chinese heritage culture instead of Canadian mainstream culture. Second, the sample of the present study was composed primarily of first-generation immigrants who were born in Taiwan, and therefore their conceptions of intelligence were more likely to relate with heritage identification. Previous research has found that the values of Canadian-born Chinese are more similar to those of European-Canadians than to those of Chinese-born participants (Perunovic, Ross, & Wilson, 2005; Rawn, 2003). Third, since the TCVI Questionnaire used in the study was initially developed in Taiwan with the responses of Taiwanese-Chinese nationals, the items may reflect Taiwanese-Chinese cultural conceptions of an ideal intelligent individual, and therefore Taiwanese-Chinese immigrant participants in

the present study may approach and respond these items with a Taiwanese-Chinese mind set. Fourth, the majority of the participants in the present study chose to respond to the TCVI Questionnaire in Chinese script (i.e., 76.02% for frequency ratings and 81.66% for importance ratings). Since language is a form of cultural representation and influences individuals' behaviours and thoughts (Perunovic et al., 2005; Valsiner, 2000), the majority of Taiwanese-Chinese immigrant participants in the present study may have interpreted and responded to the items on the TCVI Questionnaire with a Taiwanese-Chinese mind set.

5.4 Conclusion

The first purpose of this study was to examine the latent structure underlying Taiwanese-Chinese immigrants' conceptions of intelligence. There were seven major constructs that Taiwanese-Chinese immigrant adults believe that an intelligent individual frequently exhibits: *Interpersonal Intelligence*, *General Cognitive Ability*, *Self-Regulatory Ability*, *Intellectual Detachment*, *Intrapersonal Intelligence*, *Intellectual Self-Effacement* and *Exceptional Performance*. Five related but not identical constructs that Taiwanese-Chinese immigrant adults believe to be important in characterizing an intelligent individual were: *Inter- & Intra-personal Intelligence*, *Effective Leadership*, *General Cognitive Ability*, *Intellectual Detachment* and *Exceptional Performance*.

The second purpose of the study was to investigate whether Taiwanese-Chinese immigrants' views of intelligence are different from with those of Taiwanese-Chinese nationals reported in Yang and Sternberg (1997b). Findings showed that Taiwanese-Chinese immigrants' views of intelligence were only partially similar to those held by Taiwanese-Chinese nationals in Yang and Sternberg (1997b). While Taiwanese-Chinese

immigrants continued to value interpersonal intelligence, intrapersonal intelligence and general cognitive ability, new views about intelligence were formed. The findings provide support for the argument that people's conceptions of intelligence are indeed cultural inventions, which reflect the values and traditions of individuals' cultural background as well as their unique life experience, such as acculturation.

The third purpose of the study was to examine the association between Taiwanese-Chinese immigrants' conceptions of intelligence and their identification with Canadian mainstream culture and Taiwanese-Chinese heritage culture. Findings showed that acculturation related to conceptions of intelligence to some extent. However, more studies are needed to declare with certainty the ways that acculturation predict implicit views of intelligence

In sum, the findings of the present study serve both theoretical and practical purposes. First, the findings from the present study acknowledge and support the argument that people's views of intelligence are intricate cultural inventions, which mirror their own cultural values and life practices. Second, the present study provides potential theoretical insights that may be used to expand the current models of implicit theories of intelligence. For example, Dweck's (1986) model focuses on two components of implicit theories of intelligence, whereas the findings from this study suggest a more complex model is required. Such extensions of knowledge could contribute greatly to the development of explicit, formal scientific theories of intelligence by serving as a basis for a more comprehensive conceptual framework (Sternberg, 1985b). Third, with the large immigrant population in Canada and many other countries (e.g., United States, Australia), this study informs researchers as well as educators more about how immigrants,

particularly Taiwanese-Chinese immigrants in Vancouver, conceptualize intelligence. This may help increase the awareness of the fact that immigrants are indeed unique and diverse and that their conceptions of intelligence are products of displaced cultures. Fourth, the present study has implications for educators in terms of helping them to understand how immigrant students may conceptualize *intelligence*. Finally, findings from the present study enable individuals in the mainstream culture to interpret the actions and responses of new immigrants in a sensitive manner. Such understandings may help to build tolerance in a pluralistic Canadian society.

5.5 Limitations

It is necessary to note that the present study has limitations that should lead one to be at least somewhat cautious in interpreting the findings. First, the present study used the prototype approach, which is only one of several kinds of methodologies that could be used for examining implicit theories. Second, although the present study used the Vancouver Index of Acculturation (VIA) to assess the construct of acculturation through the respondents' identification with heritage and mainstream cultures, it is important to point out that this is also one of several kinds of methodologies that could be used for assessing acculturation. Third, the present study cannot claim to be representative of Taiwanese-Chinese immigrant population of the Lower Mainland of British Columbia, Canada as a whole. This population may be more diverse than is reflected in the present study. Fourth, careful though the primary investigator was, the present study involved translation of questionnaires, a process in which there is inevitably some risk that meanings may be lost in the translation.

More studies are needed to further investigate the topics of acculturation and conceptions of intelligence. Future studies may take a longitudinal approach, which would allow researchers to better understand how immigrants' conceptions of intelligence evolve over time and through the process of acculturation. In addition, studies may be designed in ways to overcome the limitations of the prototype approach. For example, it could be important to adopt integrated methods in assessing people's implicit theories of intelligence (e.g., a combination of prototypical and exemplar approaches), which may allow researchers to gain a more comprehensive and thorough understanding of people's conceptions of intelligence.

APPENDICES

Appendix A

Taiwanese-Chinese Views of Intelligence

Frequency Ratings

Instructions: We need your help and few moments of your time. Following are some questions about the people's conception of intelligence. Please use the following scale and circle the number between 1 and 7 you think that best describes the frequency of each characteristic is exhibited or displayed by an intelligent person (1= Extremely Uncommon; 2= Very Uncommon; 3= Uncommon; 4= Neutral; 5= Common; 6= Very Common; and 7= Extremely Common) There is no right or wrong answers to each question, and all information provided will be kept strictly confidential. Please try your best to answer each question. While completing this questionnaire, please do not discuss the items with others. Thank you for your help.

	Extremely Uncommon	Very Uncommon	Uncommon	Neutral	Common	Very Common	Extremely Common
1. Thinks more, explores problems that have hitherto been unanswered	1	2	3	4	5	6	7
2. Makes quick responses	1	2	3	4	5	6	7
3. Has strong learning ability; learns things faster than others	1	2	3	4	5	6	7
4. Is able to make meaningful connections out of apparently unrelated things	1	2	3	4	5	6	7
5. Thinks too much, worries easily	1	2	3	4	5	6	7
6. Is able to be forceful and decisive	1	2	3	4	5	6	7
7. Has a sense of humour	1	2	3	4	5	6	7
8. Has leadership abilities	1	2	3	4	5	6	7
9. Is willing to listen to others' opinions and actively uses them for self-improvement	1	2	3	4	5	6	7
10. Is capable of self-actualization; can fulfil both his/her material and emotional desires	1	2	3	4	5	6	7
11. Possesses wisdom	1	2	3	4	5	6	7

	Extremely Uncommon	Very Uncommon	Uncommon	Neutral	Common	Very Common	Extremely Common
12. Is able to discern the nature of life and has a deep understanding of some profound philosophy of life	1	2	3	4	5	6	7
13. Evaluates problems in great depth and details	1	2	3	4	5	6	7
14. When pointing to him/her one aspect, s/he is able to come back with three other aspects; is able to come up with the whole picture given limited information	1	2	3	4	5	6	7
15. Has a good memory, does not forget the things s/he once sees	1	2	3	4	5	6	7
16. Has creativity	1	2	3	4	5	6	7
17. Focuses too much on unnecessary details	1	2	3	4	5	6	7
18. Is able to employ his/her wisdom to solve problems before they emerge	1	2	3	4	5	6	7
19. Has relatively more friends	1	2	3	4	5	6	7
20. Knows people well and is able to put the right person in the right position	1	2	3	4	5	6	7
21. Has ideals and is able to motivate him/herself to achieve them	1	2	3	4	5	6	7
22. Has good grades at school	1	2	3	4	5	6	7
23. Possesses great wisdom yet behaves as if s/he is stupid	1	2	3	4	5	6	7
24. Is able to follow his/her heart's desires without violating moral principles	1	2	3	4	5	6	7
25. Thinks analytically and is able to think matters through from all possible angles	1	2	3	4	5	6	7
26. Reacts swiftly and flexibly to sudden external changes	1	2	3	4	5	6	7
27. Has strong intellectual ability, especially for some abstract disciplines like math and physics	1	2	3	4	5	6	7
28. Is full of ideas and insights	1	2	3	4	5	6	7
29. Is lonesome; is easily misunderstood and has more difficulties finding friends who really understand him/her	1	2	3	4	5	6	7
30. Does things quickly; acts precisely and decisively	1	2	3	4	5	6	7
31. Is good at understanding and empathizing with others' feelings	1	2	3	4	5	6	7

	Extremely Uncommon	Very Uncommon	Uncommon	Neutral	Common	Very Common	Extremely Common
32. Knows how to build up his/her reputation and interpersonal network	1	2	3	4	5	6	7
33. Knows him/herself well; has good self-understanding	1	2	3	4	5	6	7
34. Succeeds relatively more easily in his/her fields and occupations	1	2	3	4	5	6	7
35. Does not always portray him/herself as a strong person, because s/he knows that sometimes it's the weak who really possess power	1	2	3	4	5	6	7
36. Is able to enjoy his/her life	1	2	3	4	5	6	7
37. Thinks long term rather than short term	1	2	3	4	5	6	7
38. Brain is always active and flexible	1	2	3	4	5	6	7
39. Is very capable of organizing things	1	2	3	4	5	6	7
40. Is able to come up with his/her own system of values	1	2	3	4	5	6	7
41. Occasionally draws excessive attention to self	1	2	3	4	5	6	7
42. Is able to make good use of all kinds of resources	1	2	3	4	5	6	7
43. Is kind and compassionate: treats others with politeness, warmth, and understanding	1	2	3	4	5	6	7
44. Is usually given more responsibility; has greater workload; works more	1	2	3	4	5	6	7
45. Has confidence in him/herself; is sure of him/herself and of his/her own worth	1	2	3	4	5	6	7
46. Does thing relatively more smoothly; experiences less obstacles or challenges	1	2	3	4	5	6	7
47. Has good self-control over the desire to show off: is a high achiever but does not flaunt achievements	1	2	3	4	5	6	7
48. Has a clear sense of right and wrong	1	2	3	4	5	6	7
49. Is able to predict future developments by analyzing current circumstances	1	2	3	4	5	6	7
50. Is sensitive	1	2	3	4	5	6	7
51. Is curious about the things s/he does not understand	1	2	3	4	5	6	7
52. Is able to concentrate very well doing the things s/he likes	1	2	3	4	5	6	7
53. More easily become the target of jealousy and resentment than others	1	2	3	4	5	6	7

	Extremely Uncommon	Very Uncommon	Uncommon	Neutral	Common	Very Common	Extremely Common
54. Is able to satisfy different expectations when carrying out everyday tasks	1	2	3	4	5	6	7
55. Is generous; does not try to benefit from every interaction	1	2	3	4	5	6	7
56. Is able to extract him/herself from pitfalls and perils and orients him/herself toward favourable and secure surroundings	1	2	3	4	5	6	7
57. Knows what s/he wants and how to pursue what is suitable to him/herself	1	2	3	4	5	6	7
58. Does everything better than others and more easily earns praise	1	2	3	4	5	6	7
59. Is humble; is able not to take pride in his/her talent(s)	1	2	3	4	5	6	7
60. Has correct values and judgments, which are immune to external influences	1	2	3	4	5	6	7
61. Is highly observant	1	2	3	4	5	6	7
62. Is able to act meekly or assertively, whatever is required to accomplish his/her goal in the immediate circumstance	1	2	3	4	5	6	7
63. Is able to express his/her own ideas and opinions well	1	2	3	4	5	6	7
64. Possesses expertise of a certain domain of knowledge	1	2	3	4	5	6	7
65. Is able to think calmly when facing an urgent and dangerous situation	1	2	3	4	5	6	7
66. Is able to grasp the fundamental structure and important elements of complex matters	1	2	3	4	5	6	7
67. Is able to respect others	1	2	3	4	5	6	7
68. Is able to learn from past mistakes and does not repeat the same mistakes	1	2	3	4	5	6	7
69. Knows how to enjoy being alone and how to enjoy oneself	1	2	3	4	5	6	7
70. Has greater sense of accomplishment	1	2	3	4	5	6	7
71. Knows there is always a more able person out there, and does not deem himself/herself as intelligent enough	1	2	3	4	5	6	7
72. Is insistent on winning, and does not admit failure easily	1	2	3	4	5	6	7

	Extremely Uncommon	Very Uncommon	Uncommon	Neutral	Common	Very Common	Extremely Common
73. Has penetrating understanding of the dynamics of human relationships; is perceptive about human relationships	1	2	3	4	5	6	7
74. Knows when to advance and when to draw back	1	2	3	4	5	6	7
75. Is concise in speech; his/her arguments are short but right to the point	1	2	3	4	5	6	7
76. Possesses tremendous amount of knowledge ; is more knowledgeable than others	1	2	3	4	5	6	7
77. Is able to accept challenges and is not afraid of difficulties	1	2	3	4	5	6	7
78. Is able to find or devise the method requiring the least effort to accomplish the most difficult project	1	2	3	4	5	6	7
79. Is willing to help others and knows how to do it appropriately	1	2	3	4	5	6	7
80. Works very hard and is willing to work hard	1	2	3	4	5	6	7
81. Knows the meaning and purpose of his/her life and has his/her own philosophy of life	1	2	3	4	5	6	7
82. Is respected and has higher social status than others	1	2	3	4	5	6	7
83. Does not show off his/her "petty intelligence;" does not employ his/her intelligence for petty purposes	1	2	3	4	5	6	7
84. Puts his/her interests first	1	2	3	4	5	6	7
85. Is able to understand people's intention and perceptive to what's in people's mind	1	2	3	4	5	6	7
86. Adapts well to different environments	1	2	3	4	5	6	7
87. Answers questions quickly	1	2	3	4	5	6	7
88. Possesses a special talent	1	2	3	4	5	6	7
89. Thinks clearly: knows the appropriate time and place for his/her actions	1	2	3	4	5	6	7
90. Knows the appropriate ways to treat others and deal with daily matters	1	2	3	4	5	6	7
91. Is able to help him/herself and others; is able to relieve his/her and others' unhappiness	1	2	3	4	5	6	7
92. Does things diligently and actively	1	2	3	4	5	6	7
93. Has a plan for the future and carries out the plan rationally and methodically	1	2	3	4	5	6	7
94. Has a higher IQ than others	1	2	3	4	5	6	7

	Extremely Uncommon	Very Uncommon	Uncommon	Neutral	Common	Very Common	Extremely Common
95. Accepts different opinions and does not insist on his/her own ideas	1	2	3	4	5	6	7
96. Does not take opinions of others easily; insists on his/her own ideas	1	2	3	4	5	6	7
97. Has a comprehensive view of the world's situation and can describe it in a few sentences	1	2	3	4	5	6	7
98. Make good use of opportunities	1	2	3	4	5	6	7
99. Is often quiet in conversation, but talks at length about the topics which interest him/her	1	2	3	4	5	6	7
100. Is diligent in finding out the roots or the causes of everything; enjoys questioning	1	2	3	4	5	6	7
101. Is able to prioritize and does things in a well-organized manner	1	2	3	4	5	6	7
102. Is good at interacting with people and has good interpersonal relationships	1	2	3	4	5	6	7
103. Brings about joy and harmony; uses his/her wisdom to benefit self, others, and the entire society	1	2	3	4	5	6	7
104. Knows the importance and joy of seeking new knowledge	1	2	3	4	5	6	7
105. Once he/she has made up his/her mind, does not give up his/her decisions when facing others' criticism	1	2	3	4	5	6	7
106. Does not necessarily possess outstanding cognitive ability	1	2	3	4	5	6	7
107. Has inner serenity and is able to remain peaceful when facing with all kinds of people and matters, whether they are likeable or not	1	2	3	4	5	6	7
108. Thinks that s/he is very intelligent and is arrogant and proud	1	2	3	4	5	6	7
109. Is highly perceptive; perceives and understands things quickly	1	2	3	4	5	6	7
110. Makes good use of time and knows how to manage time well	1	2	3	4	5	6	7
111. Likes to argue and is adept in argument and debate	1	2	3	4	5	6	7
112. Likes to think quietly, day-dream, or be lost in thinking	1	2	3	4	5	6	7
113. Is efficient; does not procrastinate	1	2	3	4	5	6	7
114. Earns others' affection easily and is well-liked	1	2	3	4	5	6	7

	Extremely Uncommon	Very Uncommon	Uncommon	Neutral	Common	Very Common	Extremely Common
115. Worries before the whole world begins to worry, and rejoices only after the whole world has rejoiced	1	2	3	4	5	6	7
116. Knows to learn from the strengths of others	1	2	3	4	5	6	7
117. Does not care about others' opinions of him/her, and does not follow common trends	1	2	3	4	5	6	7
118. Does not necessarily have wisdom	1	2	3	4	5	6	7
119. Lively; optimistic	1	2	3	4	5	6	7
120. Is overwhelmed by his/her outstanding intelligence and uses intelligence for harmful purposes	1	2	3	4	5	6	7

If you think there are other characteristics exhibited or displayed by an intelligent person that are not listed above, please write them down and rate them with the same scale in the space provided below.

121.	1	2	3	4	5	6	7
122.	1	2	3	4	5	6	7
123.	1	2	3	4	5	6	7
124.	1	2	3	4	5	6	7
125.	1	2	3	4	5	6	7
126.	1	2	3	4	5	6	7

Thank you for answering this part of the survey. Please proceed to the demographic characteristics questions next page.

Appendix B

Taiwanese-Chinese Views of Intelligence

Importance Ratings

Instructions: We need your help and few moments of your time. Following are some questions about the people's conception of intelligence. Please use the following scale and circle the number between 1 and 7 you think that best describes the importance of each characteristic is to your conception of an intelligent person (1= Extremely Unimportant; 2= Very Unimportant; 3= Unimportant; 4= Neutral; 5= Important; 6= Very Important; and 7= Extremely Important). There is no right or wrong answers to each question, and all information provided will be kept strictly confidential. Please try your best to answer each question. While completing this questionnaire, please do not discuss the items with others. Thank you for your help.

	Extremely Unimportant	**Very Unimportant**	**Unimportant**	**Neutral**	**Important**	**Very Important**	**Extremely Important**
1. Thinks more, explores problems that have hitherto been unanswered	1	2	3	4	5	6	7
2. Makes quick responses	1	2	3	4	5	6	7
3. Has strong learning ability; learns things faster than others	1	2	3	4	5	6	7
4. Is able to make meaningful connections out of apparently unrelated things	1	2	3	4	5	6	7
5. Thinks too much, worries easily	1	2	3	4	5	6	7
6. Is able to be forceful and decisive	1	2	3	4	5	6	7
7. Has a sense of humour	1	2	3	4	5	6	7
8. Has leadership abilities	1	2	3	4	5	6	7
9. Is willing to listen to others' opinions and actively uses them for self-improvement	1	2	3	4	5	6	7
10. Is capable of self-actualization; can fulfil both his/her material and emotional desires	1	2	3	4	5	6	7
11. Possesses wisdom	1	2	3	4	5	6	7
12. Is able to discern the nature of life and has a deep understanding of some profound philosophy of life	1	2	3	4	5	6	7
13. Evaluates problems in great depth and details	1	2	3	4	5	6	7

	Extremely Unimportant	Very Unimportant	Unimportant	Neutral	Important	Very Important	Extremely Important
14. When pointing to him/her one aspect, s/he is able to come back with three other aspects; is able to come up with the whole picture given limited information	1	2	3	4	5	6	7
15. Has a good memory, does not forget the things s/he once sees	1	2	3	4	5	6	7
16. Has creativity	1	2	3	4	5	6	7
17. Focuses too much on unnecessary details	1	2	3	4	5	6	7
18. Is able to employ his/her wisdom to solve problems before they emerge	1	2	3	4	5	6	7
19. Has relatively more friends	1	2	3	4	5	6	7
20. Knows people well and is able to put the right person in the right position	1	2	3	4	5	6	7
21. Has ideals and is able to motivate him/herself to achieve them	1	2	3	4	5	6	7
22. Has good grades at school	1	2	3	4	5	6	7
23. Possesses great wisdom yet behaves as if s/he is stupid	1	2	3	4	5	6	7
24. Is able to follow his/her heart's desires without violating moral principles	1	2	3	4	5	6	7
25. Thinks analytically and is able to think matters through from all possible angles	1	2	3	4	5	6	7
26. Reacts swiftly and flexibly to sudden external changes	1	2	3	4	5	6	7
27. Has strong intellectual ability, especially for some abstract disciplines like math and physics	1	2	3	4	5	6	7
28. Is full of ideas and insights	1	2	3	4	5	6	7
29. Is lonesome; is easily misunderstood and has more difficulties finding friends who really understand him/her	1	2	3	4	5	6	7
30. Does things quickly; acts precisely & decisively	1	2	3	4	5	6	7
31. Is good at understanding and empathizing with others' feelings	1	2	3	4	5	6	7
32. Knows how to build up his/her reputation and interpersonal network	1	2	3	4	5	6	7
33. Knows him/herself well; has good self-understanding	1	2	3	4	5	6	7
34. Succeeds relatively more easily in his/her fields and occupations	1	2	3	4	5	6	7

	Extremely Unimportant	Very Unimportant	Unimportant	Neutral	Important	Very Important	Extremely Important
35. Does not always portray him/herself as a strong person, because s/he knows that sometimes it's the weak who really possess power	1	2	3	4	5	6	7
36. Is able to enjoy his/her life	1	2	3	4	5	6	7
37. Thinks long term rather than short term	1	2	3	4	5	6	7
38. Brain is always active and flexible	1	2	3	4	5	6	7
39. Is very capable of organizing things	1	2	3	4	5	6	7
40. Is able to come up with his/her own system of values	1	2	3	4	5	6	7
41. Occasionally draws excessive attention to self	1	2	3	4	5	6	7
42. Is able to make good use of all kinds of resources	1	2	3	4	5	6	7
43. Is kind and compassionate: treats others with politeness, warmth, and understanding	1	2	3	4	5	6	7
44. Is usually given more responsibility; has greater workload; works more	1	2	3	4	5	6	7
45. Has confidence in him/herself; is sure of him/herself and of his/her own worth	1	2	3	4	5	6	7
46. Does thing relatively more smoothly; experiences less obstacles or challenges	1	2	3	4	5	6	7
47. Has good self-control over the desire to show off: is a high achiever but does not flaunt achievements	1	2	3	4	5	6	7
48. Has a clear sense of right and wrong	1	2	3	4	5	6	7
49. Is able to predict future developments by analyzing current circumstances	1	2	3	4	5	6	7
50. Is sensitive	1	2	3	4	5	6	7
51. Is curious about the things s/he does not understand	1	2	3	4	5	6	7
52. Is able to concentrate very well doing the things s/he likes	1	2	3	4	5	6	7
53. More easily become the target of jealousy and resentment than others	1	2	3	4	5	6	7
54. Is able to satisfy different expectations when carrying out everyday tasks	1	2	3	4	5	6	7
55. Is generous; does not try to benefit from every interaction	1	2	3	4	5	6	7

	Extremely Unimportant	Very Unimportant	Unimportant	Neutral	Important	Very Important	Extremely Important
56. Is able to extract him/herself from pitfalls and perils and orients him/herself toward favourable and secure surroundings	1	2	3	4	5	6	7
57. Knows what s/he wants and how to pursue what is suitable to him/herself	1	2	3	4	5	6	7
58. Does everything better than others and more easily earns praise	1	2	3	4	5	6	7
59. Is humble; is able not to take pride in his/her talent(s)	1	2	3	4	5	6	7
60. Has correct values and judgments, which are immune to external influences	1	2	3	4	5	6	7
61. Is highly observant	1	2	3	4	5	6	7
62. Is able to act meekly or assertively, whatever is required to accomplish his/her goal in the immediate circumstance	1	2	3	4	5	6	7
63. Is able to express his/her own ideas and opinions well	1	2	3	4	5	6	7
64. Possesses expertise of a certain domain of knowledge	1	2	3	4	5	6	7
65. Is able to think calmly when facing an urgent and dangerous situation	1	2	3	4	5	6	7
66. Is able to grasp the fundamental structure and important elements of complex matters	1	2	3	4	5	6	7
67. Is able to respect others	1	2	3	4	5	6	7
68. Is able to learn from past mistakes and does not repeat the same mistakes	1	2	3	4	5	6	7
69. Knows how to enjoy being alone and how to enjoy oneself	1	2	3	4	5	6	7
70. Has greater sense of accomplishment	1	2	3	4	5	6	7
71. Knows there is always a more able person out there, and does not deem himself/herself as intelligent enough	1	2	3	4	5	6	7
72. Is insistent on winning, and does not admit failure easily	1	2	3	4	5	6	7
73. Has penetrating understanding of the dynamics of human relationships; is perceptive about human relationships	1	2	3	4	5	6	7
74. Knows when to advance and when to draw back	1	2	3	4	5	6	7

	Extremely Unimportant	Very Unimportant	Unimportant	Neutral	Important	Very Important	Extremely Important
75. Is concise in speech; his/her arguments are short but right to the point	1	2	3	4	5	6	7
76. Possesses tremendous amount of knowledge ; is more knowledgeable than others	1	2	3	4	5	6	7
77. Is able to accept challenges and is not afraid of difficulties	1	2	3	4	5	6	7
78. Is able to find or devise the method requiring the least effort to accomplish the most difficult project	1	2	3	4	5	6	7
79. Is willing to help others and knows how to do it appropriately	1	2	3	4	5	6	7
80. Works very hard and is willing to work hard	1	2	3	4	5	6	7
81. Knows the meaning and purpose of his/her life and has his/her own philosophy of life	1	2	3	4	5	6	7
82. Is respected and has higher social status than others	1	2	3	4	5	6	7
83. Does not show off his/her "petty intelligence;" does not employ his/her intelligence for petty purposes	1	2	3	4	5	6	7
84. Puts his/her interests first	1	2	3	4	5	6	7
85. Is able to understand people's intention and perceptive to what's in people's mind	1	2	3	4	5	6	7
86. Adapts well to different environments	1	2	3	4	5	6	7
87. Answers questions quickly	1	2	3	4	5	6	7
88. Possesses a special talent	1	2	3	4	5	6	7
89. Thinks clearly: knows the appropriate time and place for his/her actions	1	2	3	4	5	6	7
90. Knows the appropriate ways to treat others and deal with daily matters	1	2	3	4	5	6	7
91. Is able to help him/herself and others; is able to relieve his/her and others' unhappiness	1	2	3	4	5	6	7
92. Does things diligently and actively	1	2	3	4	5	6	7
93. Has a plan for the future and carries out the plan rationally and methodically	1	2	3	4	5	6	7
94. Has a higher IQ than others	1	2	3	4	5	6	7
95. Accepts different opinions and does not insist on his/her own ideas	1	2	3	4	5	6	7
96. Does not take opinions of others easily; insists on his/her own ideas	1	2	3	4	5	6	7

	Extremely Unimportant	Very Unimportant	Unimportant	Neutral	Important	Very Important	Extremely Important
97. Has a comprehensive view of the world's situation and can describe it in a few sentences	1	2	3	4	5	6	7
98. Make good use of opportunities	1	2	3	4	5	6	7
99. Is often quiet in conversation, but talks at length about the topics which interest him/her	1	2	3	4	5	6	7
100. Is diligent in finding out the roots or the causes of everything; enjoys questioning	1	2	3	4	5	6	7
101. Is able to prioritize and does things in a well-organized manner	1	2	3	4	5	6	7
102. Is good at interacting with people and has good interpersonal relationships	1	2	3	4	5	6	7
103. Brings about joy and harmony; uses his/her wisdom to benefit self, others, and the entire society	1	2	3	4	5	6	7
104. Knows the importance and joy of seeking new knowledge	1	2	3	4	5	6	7
105. Once he/she has made up his/her mind, does not give up his/her decisions when facing others' criticism	1	2	3	4	5	6	7
106. Does not necessarily possess outstanding cognitive ability	1	2	3	4	5	6	7
107. Has inner serenity and is able to remain peaceful when facing with all kinds of people and matters, whether they are likeable or not	1	2	3	4	5	6	7
108. Thinks that s/he is very intelligent and is arrogant and proud	1	2	3	4	5	6	7
109. Is highly perceptive; perceives and understands things quickly	1	2	3	4	5	6	7
110. Makes good use of time and knows how to manage time well	1	2	3	4	5	6	7
111. Likes to argue and is adept in argument and debate	1	2	3	4	5	6	7
112. Likes to think quietly, day-dream, or be lost in thinking	1	2	3	4	5	6	7
113. Is efficient; does not procrastinate	1	2	3	4	5	6	7
114. Earns others' affection easily and is well-liked	1	2	3	4	5	6	7
115. Worries before the whole world begins to worry, and rejoices only after the whole world has rejoiced	1	2	3	4	5	6	7
116. Knows to learn from the strengths of others	1	2	3	4	5	6	7

	Extremely Unimportant	Very Unimportant	Unimportant	Neutral	Important	Very Important	Extremely Important
117. Does not care about others' opinions of him/her, and does not follow common trends	1	2	3	4	5	6	7
118. Does not necessarily have wisdom	1	2	3	4	5	6	7
119. Lively; optimistic	1	2	3	4	5	6	7
120. Is overwhelmed by his/her outstanding intelligence and uses intelligence for harmful purposes	1	2	3	4	5	6	7

If there are other characteristics important to your conception of an intelligent person that are not listed above, please write them down and rate them with the same scale in the space provided below.

121.	1	2	3	4	5	6	7
122.	1	2	3	4	5	6	7
123.	1	2	3	4	5	6	7
124.	1	2	3	4	5	6	7
125.	1	2	3	4	5	6	7
126.	1	2	3	4	5	6	7

Thank you for answering this part of the survey. Please proceed to the demographic characteristics questions next page.

Appendix C

Demographic Characteristics Survey

Instructions: We need your help and few moments of your time. Following are questions about some demographic characteristics. Please answer each of the following questions to the best of your ability. All information provided will be kept strictly confidential. Please do not put your name on any survey. Your voluntary completion of the survey indicates that you have agreed to participate in this research. Thank you for your help.

General Background

1. What is your gender? (Please check) □ Male □ Female

2. What is your date of birth? _____/_____/_____
year month day

3. What is your current city of residence? And how long have you been living there?

_____ for _____
city years/months

4. What is your current occupation?
□ Undergraduate Student (Declared/ Attempted Major: _____)

□ Graduate Student (Department: _____)

□ Other (Please specify: _____)

5. What was your occupation prior to your arrival in Canada? _____

6. What is your father's current occupation? _____

7. What is your mother's current occupation? _____

8. What is your religious preference? _____

9. What is your place of birth? _____

10. What is your father's place of birth? _____

11. What is your mother's place of birth? _____

12. If you are to describe yourself as having an ethnic origin or ethnicity, what would it be? _____

Education

1. a) What is the highest level of education you have completed? (check one only)
□ None
□ Elementary School (Grade 1-6)
□ Junior High School (Grade 7-9)
□ Senior High School (Grade 10-12)
□ Bachelor's degree
□Certificate (Please specify: _____)
□ Master level degree
□ Doctorate level degree
□ Not applicable (Please specify: _____)

1. b) In what country did you attain your highest level of education? _____

2. a) What is the highest level of education you father has completed? (check one only)
□ None
□ Elementary School (Grade 1-6)
□ Junior High School (Grade 7-9)
□ Senior High School (Grade 10-12)
□ Bachelor's degree
□Certificate (Please specify: _____)
□ Master level degree
□ Doctorate level degree
□ Not applicable (Please specify: _____)

2. b) In what country did he attain his highest level of education? _____

3. a) What is the highest level of education your mother has completed? (check one only)
□ None
□ Elementary School (Grade 1-6)
□ Junior High School (Grade 7-9)
□ Senior High School (Grade 10-12)
□ Bachelor's degree
□Certificate (Please specify: _____)
□ Master level degree
□ Doctorate level degree
□ Not applicable (Please specify: _____)

3. b) In what country did she attain her highest level of education? _____

4. How many years have you been attending formal Canadian educational institutions (i.e., kindergartens, elementary schools, secondary schools, and postsecondary institutions)?

□ none □ 1-3 □ 4-6 □ 7-9 □ 10-12 □ 13-15

□ 16 and above □ Not applicable (Please specify: _____)

5. How many years have you been attending formal Taiwanese educational institutions (i.e., kindergartens, elementary schools, secondary schools, and postsecondary institutions)?
□ none □ 1-3 □ 4-6 □ 7-9 □ 10-12 □ 13-15

□ 16 and above □ Not applicable (Please specify: _____)

6. How many children of yours have received formal schooling in Canada?
□ 0 □ 1 □ 2 □ 3 □ 4 □ 5 and above

□ Not applicable (Please specify: _____)

7. In general, how satisfied are you with the education provided in Canada?
□ Very satisfied
□ Somewhat satisfied
□ Neutral
□ Somewhat dissatisfied
□ Very dissatisfied
□ Not applicable (Please specify: _____)

8. In general, how satisfied are you with the education provided in Taiwan?
□ Very satisfied
□ Somewhat satisfied
□ Neutral
□ Somewhat dissatisfied
□ Very dissatisfied
□ Not applicable (Please specify: _____)

Migration Experience

1. What was your city of residence in Taiwan? _____

2. What was you age when you arrived in Canada?
□ 0- 2 □ 3- 5 □ 6- 8 □ 9- 12 □ 13- 15 □ 16- 18
□ 19- 21 □ 22- 24 □ 25- 27 □ 28- 30 □ 31- 33 □ 34- 36
□ 37- 39 □ 40- 42 □ 43- 45 □ 46- 48 □ 49- 51 □ 53- 55
□ 56- 58 □ 59- 61 □ 62- 64 □ 65- 67 □ 68 and above

□ Not applicable (Please specify: _____)

3. How many years have you lived in Canada?
□ < 1 year □ 1- 3 □ 4- 6 □ 7- 9 □ 10- 12 □ 13- 15
□ 16- 18 □ 19- 21 □ 22- 24 □ 25- 27 □ 28- 30 □ 31- 33

□ 34 years and above □ Not applicable (Please specify: _____)

4. If you have lived in other countries other than Canada or Taiwan for more than 2 years, please list the name of the countries:

_____

5. What is your current immigration status? (Please check one only)
□ Canadian Citizenship granted
□ Permanent Resident
□ Student Visa
□ Employment Authorization
□ Refugee Status
□ Not applicable (Please specify: _____)

6. What is your current living arrangement? (Please check one only)
□ Spouses, common-law partners
□ Lone parents
□ Never-married sons and/or daughters in families with two parents present in Canada
□ Never-married sons and/or daughters in families with one parent present in Canada
□ Living with relatives
□ Living with one or more non-relatives
□ Living alone
□ Not applicable (Please specify: _____)

7. In general, how satisfied are you with the decision of immigrating to Canada?
□ Very satisfied
□ Somewhat satisfied
□ Neutral
□ Somewhat dissatisfied
□ Very dissatisfied

8. What is the likelihood that you will leave Canada for more than 1 year in the next 10 year?
□ Very likely
□ Somewhat likely
□ Neutral
□ Somewhat unlikely
□ Very unlikely
□ Not applicable (Please specify: _____)

Appendix D

Vancouver Index of Acculturation (VIA)

Please answer each question as carefully as possible by circling *ONE* of the numbers for each question to indicate your degree of agreement or disagreement.

Many of these questions will refer to your heritage culture, meaning the culture that has influenced you most (other than Canadian culture). It may be the culture of your birth, the culture in which you have been raised, or another culture that forms part of your background. If there are several such cultures, pick the one that has influenced you most (e.g. Irish, Chinese, Mexican, Black). If you do not feel that you have been influenced by any other culture, please try to identify a culture that may have had an impact on previous generations of your family.

Please write your heritage culture (or the one that has influenced you most) in the space provided:

_____

		Strongly Disagree		Disagree		Neutral/ Depends		Agree		Strongly Agree
1.	I often participate in my *heritage* cultural traditions	1	2	3	4	5	6	7	8	9
2.	I often participate in mainstream Canadian cultural traditions	1	2	3	4	5	6	7	8	9
3.	I would be willing to marry a person from my *heritage culture*	1	2	3	4	5	6	7	8	9
4.	I would be willing to marry a Canadian person	1	2	3	4	5	6	7	8	9
5.	I enjoy social activities with people from the same *heritage culture* as myself	1	2	3	4	5	6	7	8	9
6.	I enjoy social activities with typical Canadian people	1	2	3	4	5	6	7	8	9
7.	I am comfortable working with people of the same *heritage culture* as myself	1	2	3	4	5	6	7	8	9
8.	I am comfortable working with typical Canadian people	1	2	3	4	5	6	7	8	9
9.	I enjoy entertainment (e.g. movies, music) from my *heritage culture*	1	2	3	4	5	6	7	8	9

		Strongly Disagree		Disagree		Neutral/ Depends		Agree		Strongly Agree
10.	I enjoy Canadian entertainment (e.g. music, movies)	1	2	3	4	5	6	7	8	9
11.	I often behave in ways that are typical of my *heritage culture*	1	2	3	4	5	6	7	8	9
12.	I often behave in ways that are 'typically Canadian	1	2	3	4	5	6	7	8	9
13.	It is important for me to maintain or develop the practices of my *heritage culture*	1	2	3	4	5	6	7	8	9
14.	It is important for me to maintain or develop Canadian cultural practices	1	2	3	4	5	6	7	8	9
15.	I believe in the values of my *heritage culture*	1	2	3	4	5	6	7	8	9
16.	I believe in mainstream Canadian values	1	2	3	4	5	6	7	8	9
17.	I enjoy the jokes and humor of my *heritage culture*	1	2	3	4	5	6	7	8	9
18.	I enjoy typical Canadian jokes and humor	1	2	3	4	5	6	7	8	9
19.	I am interested in having friends from my *heritage culture*	1	2	3	4	5	6	7	8	9
20.	I am interested in having Canadian friends	1	2	3	4	5	6	7	8	9

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