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Cross-Cultural Validation of Emotional Intelligence Measures
for Japanese and Canadian University Students

by

Eriko Fukuda

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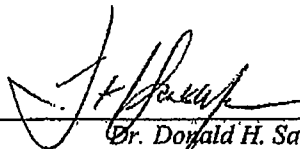
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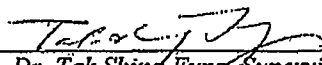
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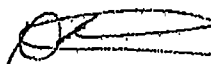
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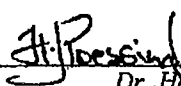
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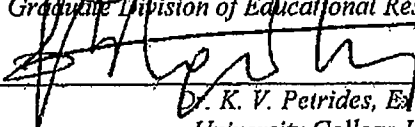
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Abstract

The present study explored cross-cultural differences in the relationships between emotional intelligence (EI), cultural orientations (i.e., individualism, collectivism), and sympathy for Canadian ($N = 200$) and Japanese ($N = 200$) university students. EI measures included the Wong and Law Emotional Intelligence Scale (WLEIS), the Schutte Emotional Intelligence Scale (EIS), and the College Achievement Inventory (CAI). This study also examined the predictive validity evidence of the EI for life satisfaction with both samples of Canadian and Japanese university students.

In order to directly compare the EI scores across groups, measurement invariance was first tested with confirmatory factor analyses (CFA). Indirect effect models, paths from cultural orientation to the EI construct with or without the indirect effects of sympathy, were investigated using structural equation modeling (SEM). Lastly, predictive validity evidence was examined with the aid of SEM.

Results of CFA indicated that none of the EI measurements established strong invariance; therefore, direct score comparisons between the two groups of students were not made. However, based on the level of the invariance established and the kinds of scores used, the WLEIS was found to be more appropriate for use, followed by the EIS. The CAI had poor internal consistency reliabilities and appeared less appropriate for use in the Japanese university student sample.

The indirect effect models identified relatively clear patterns for the Japanese group and complicated patterns for the Canadian group. The results showed that cultural orientation played a significant role in the Japanese group, and that a culturally valued

factor (i.e., sympathy) acted differently in the two groups. The SEM results also provided external validity evidence of the EI for life satisfaction for both cultural groups.

These findings suggested the importance of considering cultural orientation and the culturally valued concept that is relevant to EI in cross-cultural EI studies.

Furthermore, the findings support the view that EI measurements require further investigation at an item level to refine measurements and to establish measurement invariance in the future research.

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CHAPTER ONE

INTRODUCTION

Statement of the Problem

Emotional intelligence (EI) became popularized with the work of Salovey and Mayer (1990) and Goleman (1995); however, the concept of EI was introduced earlier by Thorndike (1920), Gardner (1983), and others and was the subject of Payne's dissertation in 1985. In the past 20 years, it has been examined extensively. Many studies reported the relationship between EI and such positive life experiences as life satisfaction and academic success (Austin, Saklofske, & Mastoras, 2010; Gignac, 2006; Law, Wong, & Song, 2004; Schutte et al., 2010). Furthermore, EI is also perceived as a moderating factor in the relationship between stress and illness (Keefer, Parker, & Saklofske, 2009; Van Heck & Den Ouden, 2008). Both mental health factors including alexithymia (Parker, Taylor, & Bagby, 2001) and physical health behaviours including smoking and alcohol consumption (Austin, Saklofske, & Egan, 2005) have been reported to relate to EI. Therefore, deepening our understanding of EI and incorporating the education of EI into the curricula is important for educators facilitating healthy and successful lives for students at all levels of education. Learning about EI and mastering EI related abilities and skills at a younger age can help young people develop and maintain healthy interpersonal relationships at home and at the workplace later in their lives (Jordan, Murray, & Lawrence, 2009; Parker, Saklofske, Wood, & Collin, 2009). However, these current findings are mostly reported for Western countries and very few studies are published for Eastern countries. Therefore, although the potential effectiveness of EI education on positive life outcome has been evidenced in the Western EI research, not

enough support is available to indicate that the findings are both valid and generalizable to any other cultures.

The fundamental problem in establishing EI as a universal construct involves three major issues: (1) inconsistent use of definitions, theories, and models of EI; (2) lack of cross-cultural studies and examinations of cultural factors impacting the EI construct; and (3) methodological issues, especially related to use of EI measurements, in cross-cultural studies. Consequently, the focus of contemporary EI research includes the establishment of consistent theories and models as well as describing a universal EI construct that is free from cultural impacts, and the development of psychometrically sound EI measures.

Although the outcome of cross-cultural EI research should advance the development of a universal EI construct, the difficulties conducting cross-cultural EI studies are clearly implied in Western and Eastern cultural differences in emotion regulations, recognition, and expressions. These cultural differences are described by perceptions of self (Markus & Kitayama, 1991) and the Hofstede's cultural dimensions (2001). Only a handful of cross-cultural research studies among many EI studies are published. However, none has examined the specific cultural impact on EI. This may be partially due to the difficulties identifying what is regarded as culturally impacting factors that are currently incorporated into an EI construct, or this may be partially due to the difficulties to identify appropriate measurements to use in the cross-cultural settings. Cross-cultural EI researchers have many obstacles to solve to conduct methodologically sound studies.

For many cross-cultural psychologists, the cultural dimensions of individualism and collectivism are widely known concepts contrasting cultural differences. As these dimensions help explain the differences observed in different constructs (e.g., perspective of self), incorporating these cultural dimensions into research may be the appropriate starting point for advancing the cross-cultural EI research. Furthermore, as a Japanese individual who has been living in Canada, and who has experienced the Canadian culture for over 10 years, my daily life experiences have provided first-hand observation opportunities to recognize cultural differences in behavioural and emotional expressions between the Japanese and the Canadian people. Evaluating empathy and sympathy related abilities and skills as part of EI does not seem appropriate without considering cultural backgrounds because societal expectations and people's manifestations of these empathy and sympathy related skills are clearly different between the two cultures. Therefore, the construct related to empathy and sympathy in relation to EI also appears to be worthwhile to examine in cross-cultural studies.

Purpose of the Study

The objective of this research was to confirm whether the existing EI measures developed in one culture can be appropriately used in different cultures. This goal was achieved by using the two Western EI measures and an Eastern EI measure, all of which are self-reported EI measures. In addition, this study considered a cultural orientation factor (i.e., individualism, collectivism) on EI, which could demonstrate individual differences in both Japanese and Canadian cultures. The study examined the impact of societal expectations for manifestations of sympathy-related emotions and behaviours on individuals' level of EI. These goals were met by identifying the pattern differences

between the two cultures. Finally, this study aimed to provide external validity evidence of EI for life satisfaction.

In order to review issues related to cultural studies, such topics as how cultural differences in societies and in individuals can be manifested were examined. How cultures can impact emotions, and whether culturally unique emotions exist were first reviewed in the literature review section, and were likewise investigated, using examinations of the issues related to various theories, models, and definitions of EI.

Research Questions

- Q1. Do existing EI measures, the College Achievement Inventory, the Emotional Intelligence Scale, and the Wong and Law Emotional Intelligence Scale, demonstrate factorial invariance across cultures?
- Q2. Does cultural orientation predict EI, and if so, does sympathy mediate this relationship?
- Q3. Are there cross-cultural differences in the relationships described in Question 2?
- Q4. As with Western cultures, does EI predict the level of satisfaction with life in an Eastern culture? In this study, cross-cultural comparisons will be made between Canada and Japan.

Definition of Terms

Below, commonly used terms and various EI domains in three EI measurements used in the dissertation are defined.

Ability Emotional Intelligence is the ability to perceive and express emotion, to assimilate emotion in thought, to understand and reason with emotion, and to regulate emotion in the self and others (Mayer & Salovey, 1997).

Trait Emotional Intelligence, the construct investigated in this study, is a constellation of emotional self-perceptions located at the lower levels of personality hierarchies (Petrides, Pita, & Kokkinaki, 2007).

Omoiyari is equivalent to Western sympathy or an empathy-like construct. It is comprised of three functions: the motivational impetus of prosocial behaviours, empathetic abilities, and an intuitive understanding of other's feelings. *Omoiyari* was measured with the Sympathy Scale (Uchida & Kitayama, 2001).

Life satisfaction is defined as a global assessment of individuals' quality of life according to their selected criteria (Shin & Johnson, 1978). Life satisfaction was measured with the Satisfaction with Life Scale (SWLS: Diener, Emmons, Larsen, & Griffin, 1985).

Cultural orientations are used to indicate individuals' tendency toward either individualism or collectivism in this study.

Individualism is defined as being autonomous and independent from group members (e.g., family, tribe, nation) or in-groups. Individualists prioritize their personal goals over the groups' goals, and behave mainly on the basis of their attitudes instead of the norms of their groups (Triandis, 2002). Individuals' tendency toward individualism was measured with the independent subscale of the Self-Construal Scale (SCS; Singelis, 1994).

Collectivism is defined as being interdependent within their in-groups. Collectivists prioritize the groups' goals, guide their behaviours mainly based on in-group norms, and behave in a communal manner. The collectivists especially concern interpersonal relationships (Triandis, 2002). Individuals' tendency toward collectivism was measured with the interdependent subscale of the SCS (Singelis, 1994).

Domains of Emotional Intelligence from the College Achievement Inventory (CAI)

Although the CAI consists of nine domains, the following first four domains of emotional and social competencies are directly relevant to the construct of the emotional intelligence (Wood, Parker, & Taylor, 2005).

Emotional understanding is individuals' perceived competency in identifying, appraising, understanding, and expressing feelings and emotions.

Psychological mindedness relates to the importance the individual places on feelings, attitudes, and motivations. It also includes individuals' active utilization of this non-factual information to guide their reasoning and behaviours.

Attentiveness is the perceived competency of purposeful emotion management, regulation, and adaptation, including such skills as maintaining focus on the task at hand, paying attention to details, organization, and showing persistence despite distractions.

Emotional self-control is the perceived competency of resisting sudden impulses by staying patient, quiet, or still when necessary.

Domains of Emotional Intelligence from the Emotional Intelligence Scale (EIS)

The following EIS dimensions are based on Salovey and Mayer's (1990) conceptualization of EI. The first three domains of EIS are described in detail by Saarni (1999) and Ciarrochi, Chan, and Bajgar (2001), and the fourth domain is described by Salovey and Mayer (1990):

Perception of emotions in the EIS includes two components: perceptions of individuals' own and others' emotions. Perception of own emotions is defined as an individuals'

perceived ability to recognize their emotional state, including the possibility that they are experiencing multiple emotions, and to recognize that individuals might also not consciously be aware of their feelings due to unconscious dynamics or selective inattention. Perception of others' emotions is defined as individuals' perceived ability to discern and understand other's emotions by using situational and expressive cues that have some degree of cultural agreement as to their emotional meaning (Saarni, 1999).

Managing emotions in the self is the perceived adaptive ability to cope with aversive or distressing emotions by using self-regulatory strategies in order to improve the intensity or duration of such emotional states (Saarni, 1999).

Social skills or managing others' emotions is the perceived ability to arrange events that others enjoy, to hide negative emotions so as not to upset others, and to improve others' feeling when they are depressed (Ciarrochi et al., 2001).

Utilizing emotions is the perceived ability to plan flexibly, to think creatively, and to redirect attention and motivation (Salovey & Mayer, 1990).

Domains of Emotional Intelligence from the Wong and Law Emotional Intelligence Scale (WLEIS)

The following four domains of WLEIS are based on the conceptualization of EI described by Salovey and Mayer (1990):

Self emotional appraisal (SEA) is the perceived ability to understand one's emotions.

Others' emotional appraisal (OEA) is the perceived ability to recognize and understand other people's emotions.

Use of emotion (UOE) is the perceived ability to use their emotions to motivate themselves to enhance their performance.

Regulation of emotion (ROE) is the perceived ability to regulate emotions, which enhance rapid recovery from psychological distress.

CHAPTER TWO

LITERATURE REVIEW

Within the field of cross-cultural psychology, culture is defined as a sociopsychological construct, which is a dynamic system of explicit and implicit rules established by groups (Matsumoto & Juang, 2004). The purpose of the system, which involves attitudes, values, beliefs, norms, and behaviours, is to ensure the survival of the group. This system is shaped by the group; psychological attributes and characteristics as well as cultural elements that are communicated across generations, and they are relatively stable (Matsumoto & Juang, 2004). However, specific units within the group may conform differently to the culture indicating individual differences in cultural conformity. Therefore, culture impacts society at multiple levels; it can be seen in the societal (e.g., structures, institutions), group (e.g., traditions, ways of engaging in the world), and individual levels (e.g., internalized norms, personal values, behaviours) (Oyserman & Uskul, 2008). At an individual level, membership in a culture is defined by a person's complete automatic participation in the aforementioned psychological phenomena (e.g., values, attitudes, beliefs, and behaviours). Based upon this, it is evident that values and beliefs influence interpretation of human activity and impact the way people express emotions and subsequent behaviours. Consequently, culture shows robustness in human kind's psychosocial functions. Without understanding cultural backgrounds, it is impossible to elucidate the universality of human functions and their psychological constructs. A good example of a psychological construct requiring exploration of cultural impact is emotional intelligence (EI).

In the past 20 years, EI, a Western-born construct, has been investigated in many Western countries; however, few studies in Eastern countries have been reported. A type of EI, which is the focus of this dissertation and is described in detail in a later section, is strongly related to emotions and personality; these fields are also affected by cultural factors. Therefore, the purpose of this chapter is to investigate EI from a cultural perspective, especially through examination of cultural impacts on emotions.

Cultural Differences

An effective approach when evaluating cultural impacts on various psychological functions of people is to use cultural dimensions. Individualism-collectivism (IC) is the principal dimension used to identify cultural variability (Matsumoto & Juang, 2004; Oyserman, Coon, & Kemmelmeier, 2002). In Hofstede's large scale cross-cultural studies (1984, 2001), he labelled this dimension Individualism (ID). He also proposed the following three dimensions: Power Distance (PD), Masculinity (MA), and Uncertainty Avoidance (UA). Later, he added fourth dimension, Long-Term Orientation (LTO).

There is considerable agreement among studies that Western cultures including Canada are individualistic and Eastern cultures including Japan are more collectivistic (Hofstede, 1984, 2001; Hofstede & McCrae, 2004; Matsumoto et al., 2008; Yamaguchi, 1994; Yamaguchi, Kuhlman, & Sugimori, 1995). In addition, the results of Hofstede's dimensions highlight the cultural differences. As representative of individualistic and collectivistic cultures, the scores of Canada and Japan (Hofstede, 2001) are contrasted in Hofstede's cultural dimensions (Figure 1). These two cultures were examined in the current study; therefore, understanding the differences in the scores is required for

accurate interpretations of the results. The average score among 50 countries are also included in the figure as a reference.

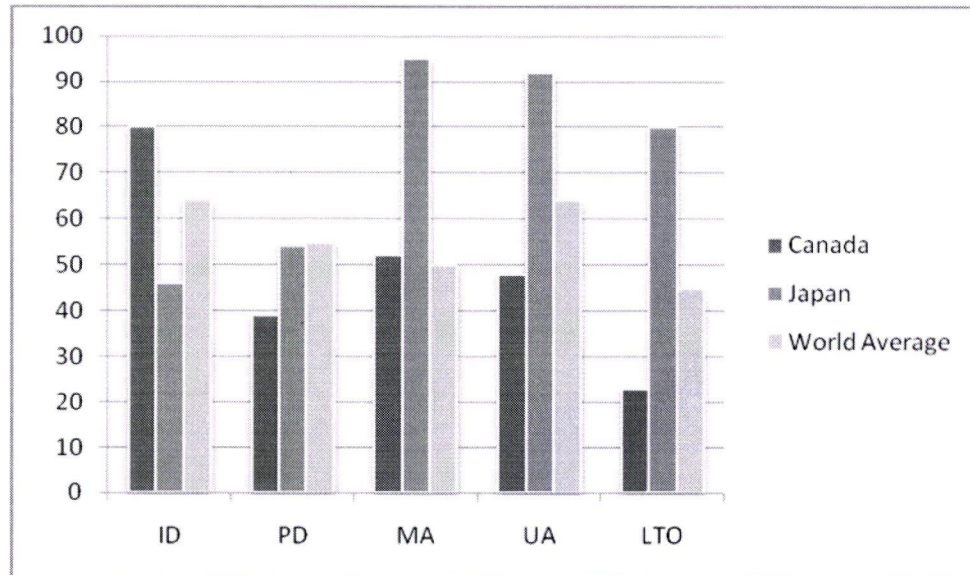


Figure 1. Hofstede's cultural dimensions: Canada, Japan, and World Average

The first dimension, ID, demonstrates the degree of societal reinforcement for individual or collectivistic achievement and interpersonal relationships. Canada scored the fourth highest rank among the 50 countries. A highly individualistic society stresses individuality and one's own rights within the society; therefore, people tend to form various looser relationships with others. On the other hand, Japan scored 34 points below Canada. A low score on ID represents a more collectivistic society where individuals have closer bonds among them. Regarding the relationship between group membership and attitudes, in a high ID society, attitudes toward others has nothing to do with group membership while in a low ID society, it depends on the group membership. Communication style also differs. In a high ID society, people are open to discussions on

general topics; however, confrontations are regarded as normal and privacy is regarded as an off-limits area except between closest friends. On the other hand, in a low ID society, confrontations should be avoided and harmony is valued; therefore, nobody is regarded as alone. Furthermore, emotional expressions also differ; people are encouraged to express happiness in a high ID society while discouraged in a low ID society. However, expression of sadness is encouraged in a low ID society while discouraged in a high ID society.

The second dimension, PD, indicates the degree of inequality between people in a society. Inequalities occur because societies put different weights on areas such as prestige, wealth and power. Canada scored lower than the world average; a low PD society stresses equality and opportunity for everyone. On the other hand, the score for Japan was close to the world average, and is higher than Canada by 15 points. A high PD society demonstrates that inequalities of power and wealth are allowed to grow in the society (Hofstede, 1984, 2001). At an individual level, in a high PD society, parents teach the value of respect between unequal status members in a family to their children at young age (Ting-Toomey, 1999). Consequently, older people are respected and feared in the society while they are neither respected nor feared in the low PD society (Hofstede, 2001). In relation to behavioural expectations, the emphasis of formality also differs. The value of formality is emphasized in a high PD society while informality is emphasized in a low PD society (Ting-Toomey, 1999).

The third dimension, MA, focuses on the degree of societal reinforcement of the traditional gender roles of members. Japan ranked at the highest of 50 countries while the score for Canada was close to the world average. A high MA society like Japan indicates

people experience a high degree of gender differentiation (e.g., males dominate the society and power structure and control females) while a low MA society indicates a low level of differentiation between genders (e.g., people are treated equally regardless of their gender in all aspects in the society). This characteristic of male dominance in Japan is clearly reflected in the number of female participants in parliament. Among 141 countries, Japan ranked 94th with 11.3% in the Lower House and 18.2% in the Upper House while Canada ranked 51st country with 22.1% in the Lower House and 34.4% in the Upper House (Inter-Parliamentary Union, 2010). In addition, this male dominance suggests more societal acceptance and openness to males' expressions of opinions and emotions than those to females. The male dominance is also reflected in the enrolment patterns of particular faculties in the university. For instance, medicine is traditionally viewed as a male-dominated discipline due to its prestige and high rates of compensation (Shann, 1983). When the numbers of enrolment in the Faculty of Medicine in the two universities in Japan and Canada (i.e., Hiroshima University and University of Calgary, where the data for the current study was collected) were compared, the cultural differences are clearly demonstrated. Only 31.45% of Japanese medical students are female while 55.36% of Canadian medical students are female in 2010 (Hiroshima University, 2010; University of Calgary, 2011). The change in the female enrolment of the faculty was also evident over eight years. The percentages of female enrolment in 2002 are 26.3% and 49.74% in Japan and Canada, respectively (Hiroshima University, 2002; University of Calgary, 2003). Therefore, a gradual change in gender role may be reflected in these numbers.

The fourth dimension, UA, demonstrates the degree of societal tolerance for uncertainty and ambiguity. Japan scored well above the world average while Canada scored well below. As a high UA society, the Japanese population is likely to have a higher anxiety level and a low tolerance for uncertainty and ambiguity, which leads to the establishment of laws, rules, regulations, and controls in order to reduce anxiety arising from uncertainty and ambiguity (Hofstede, 2001). On the other hand, Canada's population is likely to have a lower anxiety level and accept a variety of opinions and is a less rule-oriented society. Hofstede (2001) also reported that in a high UA society, older people are respected and feared which is the same as the description of the high PD society. On the other hand, in a low UA society, younger people are respected.

Differential scores of subjective well-being (happiness) also relate to the UA dimension. In a high UA society like Japan, individuals report less subjective well-being while in a low UA society like Canada, individuals report more subjective well-being (Hofstede, 2001). Various studies using measurements to assess life satisfaction and subjective well-being indicated that Canada's score is higher than Japan's (Diener, 2000; Diener & Diener, 1995; Schimmack, Radhakrishnan, Oishi, Dzokoto, & Ahadi, 2002). In addition, the UA dimension appears to impact societal norms of emotional expressions. In a high UA society, expressions of emotions are regarded as normal due to a high stress level in society and people's less internalized emotional control over such high stress. On the other hand, in a low UA society, a lower stress level does not cause much conflict between norms and experience in people; therefore, emotions are expected to be controlled. Moreover, UA scores are positively correlated with expressions of embarrassment, anger and guilt. Therefore, in a high UA society, people express these

emotions while in a low UA society, people claim not to express embarrassment, anger, and guilt (Hofstede, 2001). In a high UA society, it is also noted that people are less able to accurately read other's emotions while in a low UA society, they can read others' facial expressions easily, especially those related to sadness and fear (Hofstede, 2001).

The fifth dimension, LTO, focuses on the degree of societal embracing of long-term devotion to traditional or forward thinking values. Japan scored well above the world average while Canada scored well below the world average. As a high LTO society, Japan tends to reinforce the values of long-term commitments and respect for tradition. It also reflects society's time perspective and an attitude of perseverance. Therefore, students in a high LTO society consider "persistent" as an important personality trait while in a low LTO society like Canada, students consider it an unimportant personality trait (Hofstede, 2001). Moreover, a low LTO society does not emphasize the concept of long-term, traditional orientation; therefore, changes can occur more rapidly without impediments of long-term traditions and commitments. It also takes more and greater risks, and has more tolerance for a variety of opinions. Canada's attitude of openness to change is reflected in its immigration policy. For instance, 238,125 people immigrated to Canada in 2006, which represents 0.753% of the 31,612,897 consensus population of the year (Stats Canada, 2009). Japan at this time does not accept immigrants. Japan's careful attitude in accepting immigrants is a good example of a high LTO society that values tradition. The cautious attitude can become an obstacle to change. For instance, Japan has been debating its immigration policy since 2001; however, no law has been established yet. The LTO dimension also plays a role in a particular emotion experience, shame. In a high LTO society like Japan, a sense of shame is common; however, in a low LTO

society like Canada, it is not a common feeling. In relevance to emotions, face should also be considered. In a high LOT society, face considerations are common; however, it is considered a weakness in a low LTO society where people protect face. The differences in face considerations may arise from the differences in perceiving relationship between the self and others (interpretations of the self), which is described in the next section.

In conclusion, based on Hofstede's cultural dimensions scores, it is evident that Canada and Japan are dissimilar in various cultural dimensions. Societal level differences should not be used as an explanation for individual level differences in society. However, individuals in these countries are likely to be influenced by the values and beliefs prevalent in the cultures and may demonstrate perceptions and behaviours that are unique to the societies.

Interpretations of the Self

In relation to the differences in perceptions and behaviours, some cross-cultural psychologists believe that interpretation of the self is another key factor impacting interpersonal relationships. There are two distinct models in the interpretation (construal) of the self where Western and Eastern cultures can be contrasted. Both models explain how interpretations of self will influence one's perception of his or her relationship with others, and guide one's behaviours including emotional expression and emotional perceptions.

In Western cultures, the emphasis lies on becoming independent from others by attending to the self and by expressing one's unique attributes (Markus & Kitayama, 1991). Markus and Kitayama (1991) explained the independent construal of the self as a

conception of the self being an autonomous, independent person. Similar labels also used to describe this interpretation include individualist, egocentric, separate, and self-contained (Markus & Kitayama, 1991).

In contrast, many Asian cultures have distinct concepts of individuality and the fundamental relatedness of individuals to one another (Markus & Kitayama, 1991). In such cultures, the emphasis lies in harmonious interdependence with others by attending to others, and fitting in; this view is defined as the interdependent construal of the self. The same notion has been described with slightly different implications as sociocentric, holistic, collective, allocentric, ensembled, constitutive, contextualist, connected, and relational (Markus & Kitayama, 1991). Thus, the cultural dimension of individualism-collectivism is reflected in these interpretations of the self.

In the independent construal of the self, inner attributes such as ability, desire, or preference are the most significant in regulating behaviours and are expected to be criteria for judgement of the self by the actor. In addition, the observers evaluate the actor according to these inner attributes. On the other hand, in the interdependent construal of the self, the inner attributes are less important in regulating behaviours; they are not specifically judgemental standards of the self. Self-knowledge guides behaviours in relation to others in specific social contexts.

Markus and Kitayama (1991) pointed out that, within the interdependent view of the self model, the self changes its structure with the nature of the particular context; the self would be exhibited differently in different contexts. In the case of Japanese culture, this is clearly demonstrated through language use, more specifically, the honorific system. Japanese language has a complex honorific system such as a respectful form (*sonkei-go*)

and a humble form (*kenjoo-go*) while modern English has no honorific system in speaking. Some may argue that Canada has two official languages, English and French. French, the primary language in the province of Quebec, includes facets of the honorific system in the language. However, the Japanese honorific system has even more levels of hierarchical expression. Japanese would use the appropriate language form depending on whom he or she is with by considering the social distance between the self and the other individuals (e.g., hierarchical relation, 'in-group' and 'out-group' relations, and the lack of intimacy) (Okamoto, 1997). This language use reflects how Japanese perceive relationships between each other and guide their behaviours differently (i.e., varied self presentation). This custom, based on the interdependent construal of the self, implies that Japanese pay more attention to social distance between people and behave accordingly than Canadians who value the presentation of their unique inner attributes. Consequently, this may lead to differential skills in recognition of others' emotions; Japanese may be able to catch subtle affective changes in others and conduct more frequent self-regulation than Canadians in expressing their thoughts and emotions to maintain harmonious relationships with others. On the other hand, Canadians may be able to express their thoughts and emotions in a more straightforward manner than Japanese so that they can signify their desire and emotions.

Thus, the two interpretations of self appear to promote different foci in perceptions of interpersonal relationship and subsequent behaviours. Therefore, an individual's tendencies in employing either interpretation of self may impact their value in interpersonal relationships related to emotional expressions and behaviours.

Emotion Regulation

Regulation of emotions is an essential element in smooth interpersonal relationships; it plays significant roles in initiating, maintaining, and modulating the occurrence of emotions. For instance, if someone's friend made an irritating comment, instead of becoming mad at her, he may ask why she said the comment so that he can maintain calmness. Even if the friend is being rude, he may still try adjusting feelings and anger expressions in order to maintain a harmonious relationship with her and others who may be present. Emotion regulation also influences the intensity and duration of internal feeling states. In the case of previous example, he may decide to make a vicious comment back to her and may not talk to her for a month. These emotion regulations are impacted by cultures. Although Ekman and Friesen (1969) discussed universality of emotion expressions, they also posited the concept of cultural display rules to explain the prominent influence of cultures on emotion regulations.

Display Rules

Cultural display rules refer to the appropriateness of displaying each of the emotions in particular social situations; these rules are learned early in life and impact the type, intensity, and expressed emotional content. Cultural display rules impact emotional expressions and emotion recognitions. Some examples are reviewed in this section.

Emotional Expressions

The most famous evidence of the cultural display rule was provided in a study by Ekman (1971). In the study, American and Japanese participants were asked to watch highly stressful films in two situations: 1) by themselves and 2) with an older higher-status experimenter. Their facial expressions were videotaped during the film and were

analyzed. The results show that the Americans and Japanese did not differ in their facial expressions in the first situation, in which they demonstrated negative feelings of disgust. However, in the second situation, while Americans continued to show negative feelings of disgust, fear, sadness, and anger, the Japanese participants smiled so as to not offend the experimenter despite their obvious negative feelings. This suggests that the cultural expectation of restraining negative emotional expressions within the presence of an authority figure is met. Furthermore, this example demonstrates a relation between the view of the self and emotion regulation. The Japanese participants managed their emotional expressions for two reasons: 1) perception of their negative emotions and 2) judgment of the social distance with the experimenter as formal and the older experimenter's status as higher. This experiment also looks at the impact of the collectivism and individualism dimension on emotional regulations.

Applying the individualism and collectivism dimension in emotional expressions, individualists are known to express their personal feelings freely while collectivists would be more concerned with other people's reactions (Ting-Toomey, 1999). Therefore, collectivists guard their emotions more carefully, especially during an in-group setting, which is characterized by a sense of intimacy, familiarity, and trust among the members of the group. In addition, the members have shared past experiences as well as anticipate future experiences together (Matsumoto et al., 2008). Matsumoto et al. (2008) further investigated the relationship between emotional display rules and the individualism and collectivism cultural dimension by testing more than 5,000 participants in 32 countries. The results indicated that relatively small differences across countries of expression regulation (approximately 5% explained the variance of the data), which implies the

existence of a universal norm for expression regulations. However, differences were evident when individualism was correlated with higher expressivity norms, especially for positive emotions. Even when expressivity differences were controlled, individualistic cultures endorsed more happiness and surprise than did the collectivistic cultures. In addition, smaller interindividual variability (i.e., individual differences) in expressivity norms was found in individualistic countries; this implies less variability in the regulation of display of emotions among individuals is required due to overall higher expressivity (Matsumoto et al., 2008). Differences in emotional display rules were found between in-groups and out-groups (i.e., others' social groups which lack the characteristics of in-groups described above). With in-groups, individualistic cultures are positively associated with endorsement of expressions of negative emotions including anger (marginally), contempt (marginally) and fear as well as happiness and surprise. On the other hand, with out-groups, even when overall expressivity endorsement differences are controlled, all negative emotions were negatively correlated while happiness and surprise were positively correlated with individualism (Matsumoto et al., 2008).

The dimensions of PD and MA can also play significant roles in emotional expressions. In a society with a low PD score (e.g., Canada), children are expected to show initiative and learn how to articulate and persuade. "Show and Tell" is a good example of how children are trained for this skill. In the family, although parents treat children as equals, they control their children by setting examples. On the other hand, in a society with a high PD score, children are expected to obey their parents, and learn the value of respecting higher status members in the family and society (Hofstede, 2001; Ting-Toomey, 1999). Therefore, environments for the young to express emotions and

opinions are more welcoming in a low PD society than in a high PD society. In a society with a high MA score (e.g., Japan), males learn to be assertive, tough, and ambitious, while females learn to be modest, nurturing, and relationship oriented. In a society with a low MA score, both males and females learn to be caring and concerned with both facts and feelings (Ting-Toomey, 1999). Thus, in terms of emotional expressions, factors such as the values emphasized throughout child rearing, and status and gender in the relationships may play more of a significant role in Japan than in Canada; Canadians are likely to be more expressive than Japanese. Canadians may also not show much gender differences in emotional expressions. Furthermore, display rules also impact the intensity of emotional expressions. An example of this is presented in the following section of emotion recognition.

Emotion Recognition

Universality studies provide strong evidence that people in literate and preliterate cultures can recognize the static facial expressions of basic emotions (i.e., anger, disgust, fear, happiness, sadness, surprise and contempt). These emotions are universal and biologically innate (Ekman, 1971; Izard, 1971). However, despite the universality of emotions, culture can impact the intensity of emotional expression and recognition.

Matsumoto et al.'s (2002) results suggest that people in American and Japanese cultures operate on different assumptions about intensities of emotions. In their study, universal emotions (i.e., anger, happiness, sadness, surprise) were shown to participants using Matsumoto and Ekman's Japanese and Caucasian Facial Expressions of Emotion. In general, for both cultural groups, happiness and surprise are more easily recognized than the negative emotions. Cultural differences emerged when analyzing the intensity of

emotions. Americans rated external displays of emotion significantly higher than internal experiences for high intensity expressions while Japanese rated internal experiences higher than external displays for low intensity expressions. These are reflections of display rules in expressing emotions. Americans have a display rule to express emotions in a suggestive and even exaggerated manner (Matsumoto et al., 2002), which causes an imbalanced rate of high intensity expressions. For example, Americans may appear to be angrier than they truly feel. In contrast, the Japanese have a display rule to commensurate emotional expression according to an appropriate context in social situations. Therefore, there exists a gap between emotional expression and subjective experiences for lower intensity emotional expressions. As a result, the observer may assume that a Japanese person is not angry though she is raging inside. Both Americans and Japanese rated emotional expressions according to their subjective experiences of emotional intensity when they do not need to exaggerate or repress the intensity of their subjective emotional experiences (i.e., weaker intensity expressions in Americans, the stronger ones in Japanese). This study suggests that the operational cultural display rule impacts on not only the expression of emotions, but also on the recognition of others' emotions (Matsumoto & Ekman, 1989).

Cultural differences in emotion recognition can also be explained by the cultural dimension of individualism and collectivism. Individualistic cultures encourage people to display a wide range of positive and negative emotions. Under such a relaxed environment, people can accurately recognize others' emotional expressions. In contrast, collectivistic cultures tend to encourage people to display only specific emotions such as modest positive emotions (e.g., friendly and agreeable emotions) and suppress extreme

negative ones (e.g., anger and disgust) in daily lives. Collectivists also tend to have trouble judging negative facial expressions, perhaps because they do not deal with them routinely. Furthermore, they have a stricter display rule in terms of what facial emotions should be displayed or suppressed among in-group and out-group members respectively (Ting-Toomey, 1999).

Besides emotional expressions and emotion recognition, culture also seems to impact experiences of emotions. In the next section, experiences of emotions and the interpretation of them are discussed.

Experiences of Emotions

The specific emotions discussed in this section are empathy and sympathy for their relevance to the EI construct. Empathy has been discussed as a critical component in understanding other's emotions, and it is used as the criterion for the convergent validity evidence of EI. In addition, some theorists include "empathy" as one of the domains in their measurements such as Bar-On Emotional Quotient Inventory (EQ-i; Bar-On, 2002) and Emotional Competence Inventory (ECI; Goleman, 1998). However, none of the EI studies specifically examined the construct of empathy in detail. In addition, sympathy, an emotion similar to empathy, has never been discussed in the EI research. Therefore, it is necessary to confirm that these emotions are universal in establishing the universal EI construct. In the following section, *omoiyari*, a Japanese cultural variation of empathy and sympathy constructs, will also be reviewed.

Empathy and Sympathy

There are various definitions available for empathy. Some definitions have more of a biological orientation while others have more of a cognitive process orientation. For

instance, a primatologist, De Waal (2008) indicated that humans should be biologically equipped to function effectively without excessive dependence on cognitive processes. He claimed that empathy allows individuals to quickly and automatically relate to the emotional states of others. On the other hand, other researchers indicated that empathy results from cognitive role taking or perspective taking (e.g., Deutsch & Madle, 1975). Ickes (1997) defined empathy as insight into the thoughts and feelings of others yielded through psychological inferences based on observation, memory, knowledge, and reasoning. Eisenberg's (2003) definition is more focused on the process of affect: empathy is an emotional response that arises from the comprehension of another's emotional condition. The empathizer's emotional state corresponds to the others' emotional situation or that which they might be expected to feel. This definition is similar to Hoffman's (1982); empathy is an affective response fitting better to other's condition than to one's own situation. Batson and his colleagues (Batson, 2006; Batson & Coke, 1983) defined empathy differently by including components such as other-oriented feelings of concern, compassion, and tenderness which are experienced by witnessing other's distress. Consequently, this definition may be better suited for the emotion of sympathy. Thus, although there are variations in definitions, the consistent component of empathy is the sharing of affect with others.

Sympathy is a similar construct to empathy (Eisenberg & Strayer, 1987). Wispé (1986) pointed out that sympathy has the following two components: 1) a heightened awareness of the other person's feelings; 2) an urge to take action to ease the other person's predicament. She distinguished sympathy from empathy by relating to the notion of the self. In empathy, the self never disappears in the course of knowing about

the other person. The empathizer “reaches out” for the other person to understand this person; accurately understanding others’ feelings plays an important role. In contrast, the sympathizer is “moved by” the other person and concerned about her “well-being.”

Consequently, sympathy focuses more on communion rather than empathetic accuracy, in which process self-awareness is reduced (Wispé, 1986). Gruen and Mendelsohn (1986) also indicated that sympathy is a response of concern evoked by the predicament of the other; it does not replicate the emotion perceived in the person. Thus, in relation to Batson and colleagues’ definition of empathy, it would appear to be better suited as an explanation of sympathy. Eisenberg (2003) pointed out that sympathy is an affective response that often arises from empathy; sympathy comprises feelings of concern for the distressed other. Thus, the definition of sympathy appears to be more consistent than the definition of empathy in regards to feeling of sorrow and concern for others.

Universality of empathy and sympathy.

Universality of empathy and sympathy are evidenced with temperament studies. Modern studies of temperament began in 1956 with the New York Longitudinal Study (NYLS) group that identified the following nine behavioural characteristics presenting at birth: activity level, regularity, initial reaction to novel situations (i.e., approach or withdrawal), adaptability, threshold of responsiveness (i.e., required intensity level of stimulation, sensitivity), intensity of reaction, mood, distractibility, and attention span and persistence of behaviours (Thomas & Chess, 1977). Temperament studies using behavioural predispositions provide biological evidence for empathy and sympathy in infancy and childhood (Goldsmith et al., 1987). These studies have shown that temperament is an important factor impacting development of infants and children

throughout their lives. Biological evidence for empathy is shown in the correlation between affective dimensions of empathy (i.e., empathic concern, personal distress) and temperament. The findings of these studies indicate that infants with unreactive and little affect demonstrated less empathy toward an unfamiliar adult even two years later (Young, Fox, & Zahn-Waxler, 1999). Longitudinal studies also showed that young infants with inhibited temperaments display inhibited response patterns at 9 and 14 months of age (Calkins, Fox, & Marshall, 1996; Kagan & Snidman, 1991) and in their toddler period (Calkins & Fox, 1992; Stifter & Fox, 1990). Thus, these findings suggest that behavioural inhibition due to inhibited temperament at 2 years of age may lead to less empathy in young children, especially when an adult is unfamiliar to the child.

Developmental psychology studies also provide evidence of empathy and sympathy by indicating that empathic concern appears early in development, suggesting its universality. Vaish, Carpenter, and Tomasello (2009) conducted a study with 18-month and 24 month toddlers in which the toddlers observe adults experiencing negative situations. The results indicated that even though the adults did not express emotions, toddlers increased helping behaviours if they observed the adults experiencing a negative situation. Vaish et al. (2009) indicated these behaviours are presumably an induced sympathy. Thus, based on the correlation between toddlers' concerned looks and subsequent prosocial behaviours toward the adults, toddlers do not appear to require explicit emotional expressions to be able to sympathize with another person. In addition, it is evident that even at young age, they can use situational signs to sympathize with another person (Vaish et al., 2009).

Building on the evidence reported from the temperament and developmental psychology studies, twin studies also added biological evidence for the universality of empathy and sympathy. In twin studies, correlations are compared between monozygotic (MZ) twins and dizygotic (DZ) twins because MZ twins are genetically identical while DZ twins share only about 50 % of their genes (Knafo, Zahn-Waxler, Van Hulle, Robinson, & Rhee, 2008). Consequently, if the environmental conditions are equivalent for both types of twins, the higher correlation among MZ twins indicates greater involvement of genetic components in the trait. Similarly, the greater the difference between the MZ and DZ twins, the greater the involvement of genetic components (Davis, 1994).

Matthews, Batson, Horn, and Rosenman (1981) examined middle-aged male twin pairs (114 MZ; 116 DZ) who were raised together but currently living apart. They investigated genetic effects on empathic concern (EC) for other individuals with the 13-item index (EC score) from the items of the Adjective Check List (ACL). The results of the correlations for MZ and DZ twins indicated a significant heritability in EC scores ($p < .005$), suggesting even in the later life, genetic involvement in empathetic concern is evidenced. Davis, Luce, and Kraus (1994) also examined genetic evidence of empathy with the data from 839 pairs of twins from Loehlin and Nichols's (1976) study. However, they looked at more specific aspects of empathy by examining the following three aspects of empathy: empathic concern, personal distress, and perspective taking. The results of MZ and DZ correlations for each item indicated significant heritability involvement for characteristics related to the two affective facets of empathy (i.e., empathic concern, personal distress), but not to the nonaffective facet (i.e., perspective taking). These

findings suggest a genetic involvement in the EC for others, which is consistent with the evidence from the previously mentioned studies. An interesting point of Davis et al.'s study is the non-significant result of the perspective taking component. Perspective taking is a critical component for both empathy and sympathy constructs; therefore, this result raises a question: do environmental or cultural factors that individuals experience influence the development of perspective taking skills, which are cognitive aspects of empathy and sympathy?

These temperament, developmental, and twin studies suggest that the affective components of empathy and sympathy are influenced by biological factors. This implies that in EI, hereditary factors play a role in the ability to understand others' feelings, especially when the focus is to empathize or sympathize with the other. However, even for the same ability of understanding others' feelings, if the focus is more on perspective taking, extraneous factors such as environmental or cultural differences should be considered because of the lack of genetic evidence in the cognitive aspect of empathy. Cultural differences should also not be ignored in EI research, especially in cross-cultural settings.

Prosocial behaviours.

Another point to consider on the topic of empathy and sympathy is prosocial behaviours. Feeling sympathy creates an urge to take action to ease the other person's suffering; therefore, action is an expected subsequent prosocial behaviour for sympathy. Eisenberg and Fabes (1998) reviewed and confirmed the evidence that sympathy promotes prosocial behaviours in young children in their meta-analyses. In addition, the previously mentioned Vaish et al.'s study (2009) also supported the view that sympathy

leads to subsequent prosocial behaviours even among toddlers. Compared to the consistent findings of prosocial behaviours and sympathy, studies on empathy are not as consistent. Although many studies provide evidence that feeling empathy leads to increased helping behaviours by the person who empathizes (Batson, 1991, 2006; Coke, Batson, & McDavis, 1978; Dovidio, Allen, & Schroeder, 1990; Eisenberg & Miller, 1987), empathy was found to be related to prosocial behaviours only at low to moderate levels (Eisenberg & Miller, 1987). Empathy does not necessarily result in prosocial behaviour nor does it even encourage people to desire to engage in prosocial actions in an altruistic sense (i.e., goal is to increase another's welfare).

When looking at the motives of prosocial behaviours, at first glance, prosocial behaviours may appear to arise out of the conscience. However, the motives for the helping behaviours have not been clarified. Batson (2006) pointed out the motives for the prosocial behaviours arising from empathy can be as follows: 1) altruistic – self-benefits may be produced as unintended consequences, 2) egoistic – self-benefits (e.g., seeking reward, avoiding punishment, and reducing aversive arousal by witnessing another in need) may be gained as the ultimate goal, or 3) both. Even if a universal ability for altruism exists, it does not predict universality of prosocial behaviours because people engage in prosocial behaviours based on their evaluations of cultural values, moral beliefs, and self-construal (Trommsdorff, Friedlmeier, & Mayer, 2007). The cross-cultural variability of prosocial behaviours was evidenced with some studies reporting cultural differences in prosocial behaviours (Eisenberg, 1992; Whiting & Whiting, 1975).

In EI research there is no description or rules about the motives to understand others' emotions. EI simply refers to an ability to "be aware and appreciative of the

feelings of others” (EQ-i) or “astute awareness of others’ emotions, concerns, and needs” (ECI ver 2). This implies a desire to simply discuss the abilities and skills in order to understand others’ emotions, ignoring the behavioural expectations that are required to understand others’ emotions. Moreover, from a cross-cultural perspective, prosocial behaviours are hard to separate from feeling sympathy and empathy in certain cultures. In this case, Western researchers are missing the essential cultural component of empathy or sympathy by reflecting only an ability to understand others’ feelings. The construct of *omoiyari*, a Japanese cultural variation of empathy and sympathy, demonstrates the need for such considerations.

Omoiyari.

Travis (1998) indicated that *omoiyari* represents core Japanese values. She pointed out that *omoiyari* is built upon the Japanese unique perception of individuality and relationship with others. In Japanese society, importance in the following areas is emphasized: interdependence in group relations, being attuned to others’ unexpressed desires and emotions, and indirect communicative style.

Uchida and Kitayama (2001) also looked at *omoiyari* and found three functions in *omoiyari*: the motivational impetus of prosocial behaviours; the abilities to empathize (i.e., judging other’s feelings accurately); and the intuitive understanding of other’s feelings. The first two components contain Western empathy and sympathy elements. However, the third role of intuitive understanding (*sasshi*, or recognizing hints about another’s feelings) is unique and highly valued in Japanese society. Uchida and Kitayama (2001) explained the intuitive understanding as the ability and tendency to understand a person’s feelings without being told to do so. During the intuitive understanding, the

focus is not the empathetic accuracy. Travis (1998) indicated that “sasshi” is a unique concept included in omoiyari but not in Western concepts of sympathy or empathy (see Uchida & Kitayama, 2001). The emphasis of the attitude of trying to understand other’s feelings is clearly demonstrated in the lexical expression of the word “*ki*” in Japan. “*Ki*” is the key concept for Japanese interpersonal relationships. Hamano (1987) examined the concept of *ki* from its trait descriptors; 60 expressions for personality trait, which uses the word *ki* were examined. Of the four factors that emerged in the factor analysis (Hamano, 1987), one factor was directly relevant to the “sasshi” component of omoiyari. The factor indicates that personality is viewed by the way people pay attention to others (e.g., “*ki o tsukau* (using *ki* or spending *ki* = worrying or paying attention)). Typically, people who can “*ki wo tsukau*” are paying attention to others to guide their behaviours by sensing the others’ needs. For instance, when they notice that their friends are depressed because of bad news, they will make kind comments to them to lift up their mood. If they see an elderly lady standing up in a bus, they will give their seats to her by taking a hint from their observation of her body language or facial expressions. In a culture where direct expressions are not expected, sensing others feelings and behaving according to their judgment is critical in smooth interpersonal relationships.

Thus, the components of omoiyari, as well as the concept of *ki*, indicate the existence of societal expectations of understanding others’ emotions and paying attention to others. Therefore, in Japanese culture, subsequent prosocial behaviours are expected. Two points to consider are the factors contributing to the differences in social expectations and when cultural differences in expectations emerge in development. The emotional ability of sympathy is enhanced in early childhood; the development of

sympathy is mainly fostered by interactions with caregivers, peers and teachers and other socialization factors (Trommsdorff et al., 2007). Developmental psychologists indicate that parental impact is one of the biggest factors in the emergence of adaptive social and emotional developmental outcomes.

Strayer and Roberts (2004) demonstrated in their path model that parental empathy plays a much more important role in the development of a child's empathy. Holodynski and Friedlmeier (2006) also provided preliminary evidence of culture-specific shaping of emotions for interpersonal emotion regulation in individualistic and collectivistic countries, Germany and Japan, respectively. In their study, caregivers' behaviours and their daughters' behaviours (2-year old and 5-year old) in two countries were contrasted. German caregivers perceive their children as independent; consequently, when the children demonstrate negative emotional expressions, they regard their children as having the right to express negative feelings if the cause of the emotional reactions is justifiable. Therefore, at an early age, German children learn their emotions as a part of their personalities. This learning facilitates the development of an independent view of self (Holodynski & Friedlmeier, 2006).

On the other hand, Japanese caregivers perceive expressing negative emotions as undesirable due to possible confrontations between group members. Therefore, they use emotion-focused strategies to calm younger children and distract older children. Consequently, children learn to adjust their feelings instead of changing their social situations through attributing emotions to situation-specific. Japanese 5-year-olds demonstrated significantly lower negative expressions than Japanese 2-year-olds and German 5-year-olds even though there was no difference between Japanese and German

2-year-olds. Learning to regulate emotions could lead to less action in order to maintain the harmony of a group. This facilitates the Japanese children's development of an interdependent view of self (Holodynski & Friedlmeier, 2006).

In the case of empathy and sympathy as well as prosocial behaviours, if the child rearing practices provide children with information about cultural conventions of how another's internal states and feelings are experienced and expressed, and how observers should behave by managing their own emotional arousal and provide social and non-social responses differently across cultures, there is no doubt that various parenting practices will lead to a differential level of prosocial behaviours in different cultures. In a society where a high level of paying attention to others' feelings is expected, the collectivistic belief of maintaining harmonious relationships clearly exists; it would appear more appropriate to include prosocial behaviours when discussing empathy and its related construct (i.e., EI). This implies the necessity of including the cultural orientations and sympathy construct (which more consistently related to prosocial behaviours than empathy) in cross-cultural studies of the empathy related concept. Regardless of the fact that Japanese culture values the ability to understand the others' feelings and conduct omoiyari (or prosocial) behaviours, the EI construct that is closely related to omoiyari, is not discussed much in the society. In the following section, the development of EI construct and the difficulties in the research field are reviewed.

Emotional Intelligence

Thorndike's social intelligence and Gardner's multiple intelligence theories, among others, are considered to be the precursors of the construct of emotional intelligence (EI). In 1985, Payne investigated the concept of EI and first used the term

“emotional intelligence” in his dissertation (Payne, 1985). The EI concept became popularized and disseminated in many different countries after Salovey and Mayer used the term EI in their paper in 1990. Many studies indicate that EI is a better predictor of success in life than cognitive abilities. These studies show that people with high EI scores tend to be more successful in school achievement, leadership, business, health, and relationship issues (e.g., Stough, Saklofske, & Hansen, 2006). However, there is still not enough evidence to unequivocally demonstrate that EI is a unique construct and that these findings are robust and valid. Some researchers wonder whether the construct is the same as established ones (e.g., factors comprising the Big-Five Factor model) rather than an independent construct. Matthews, Zeidner, and Roberts (2002), for example, describe EI as simply old wine in a new bottle. The difficulty in establishing EI as a unique construct involves two major issues which should be considered by EI researchers: (1) inconsistent usage of definitions, theories, and models of EI and (2) lack of cross-cultural studies and examinations of cultural factors impacting EI construct. These areas are reviewed in the following section.

Theoretical Models and Definitions of EI

There are two distinct models of EI: mental ability and trait models (Mayer, Salovey, & Caruso, 2000; Petrides & Furnham, 2001; Roberts, Zeidner, & Matthews, 2001). The ability model defines “emotional intelligence as the ability to perceive and express emotion, assimilate emotion in thought, understand and reason with emotion, and regulate emotion in the self and others” (Mayer & Salovey, 1997, p.5). On the other hand, the trait model views EI as a personality trait (e.g., persistence, zeal, and optimism) instead of a form of intelligence, which is opposite from the ability EI model (Petrides &

Furnham, 2001; Petrides & Furnham, 2003; Petrides & Furnham, 2006). The overall definition of the trait model is “a constellation of behavioural dispositions and self-perceptions concerning one’s ability to recognize, process, and utilize emotion-laden information” (Petrides & Furnham, 2003, p.40). Unlike the mental ability EI model, trait EI theory does not view the construct as necessarily adaptive or desirable (Sevdalis, Petrides, & Harvey, 2007). Therefore, even just looking at definitions, it is evident that these two models refer to something different as EI.

The advantages of trait EI over other approaches are that it does not assume successful individuals possess prototypical “emotionally intelligent” abilities and recognizes the subjectivity of emotional experience (Petrides, 2010). Considering the cultural differences in emotional expressions and regulations as well as values respected in various cultures (e.g., *omoiyari* in Japanese culture,) trait EI appears to be a more appropriate model to use in cross-cultural studies. Three broad competing EI theories are described below.

Mayer and Salovey’s theory.

Mayer and Salovey (1997) define EI as “the ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth” (p.5). This definition reveals that intelligence and emotion are connected. Furthermore, they stated “emotion makes thinking more intelligent and that one thinks intelligently about emotions” (p.5).

Mayer and Salovey’s thus view EI as a mental ability. Their model consists of the following four branches of skills that define emotional intelligence: 1) perception and

expression of emotion, 2) assimilating emotion in thought, 3) understanding and analyzing emotion, and 4) reflective regulation of emotion. This model was originally used for the mental ability model; however, later, some theorists using the trait EI model incorporated Mayer and Salovey's four branches of EI skills into their trait EI measurements (e.g., Wong and Law Emotional Intelligence Scale).

Bar-On's theory.

Bar-On defined EI as "an array of noncognitive capabilities, competencies, and skills that influence one's ability to succeed in coping with environmental demands and pressures" (Bar-On, 1997, p.14). His model predicts success which is regarded as the end-product of what one is motivated to achieve.

Bar-On's model describes EI as a trait. Personality characteristics such as personal independence, self-regard, and mood are taken into account. His model is similar to the one proposed by the supporters of the social intelligence construct. Bar-On's model comprises five skills: 1) intrapersonal skills (i.e., emotional self-awareness, assertiveness, self-regard, self-actualization, independence), 2) interpersonal skills (i.e., interpersonal relationships, social responsibility, empathy), 3) adaptability (i.e., problem solving, reality testing, flexibility), 4) stress-management (i.e., stress tolerance, impulse control), and 5) general mood (i.e., happiness, optimism).

Goleman's theory.

Goleman defined EI in his book, *Emotional Intelligence: Why It Can Matter More Than IQ*, as "the abilities called here *emotional intelligence*, which include self-control, zeal and persistence, and the ability to motivate oneself" (Goleman, 1995, p.xii).

Goleman's model is also a trait model. Personality characteristics such as motivation,

persistence, and zeal are central to this description. His model consists of the following five skills that define EI: 1) knowing one's emotions (i.e., recognizing a feeling as it happens, monitoring feelings from moment to moment); 2) management of emotions (i.e., handling feelings so they are appropriate, ability to soothe oneself, ability to shake off rampant anxiety, gloom, or irritability); 3) motivating oneself (i.e., marshalling emotions in the service of a goal, delaying gratification and stifling impulsiveness, being able to get into the "flow" state); 4) recognizing emotions in others (i.e., empathetic awareness, attunement to what others need or want); and 5) handling relationships (i.e., skill in managing emotions in others, interacting smoothly with others).

Goleman stated that EI represents character by referring to the body of skills; however, his claim is far broader than what others propose for EI. He also claimed extraordinary predictive validity of his model: EI will account for success at home, at school, and at work (Mayer et al., 2000), by stating that "EI will become an advantage in any domain in life, whether in romance and intimate relationships or picking up the unspoken rules that govern success in organizational politics" (Goleman, 1995, p.36). Consequently, theoretical underpinning appears to lack credibility.

In sum, the Mayer and Salovey, Bar-On and Goleman models clearly represent EI in different ways. Goleman's theoretical model has received criticism for exaggerated claims; therefore, at this point, the Mayer and Salovey and Bar-On models seem to have gained more interest among EI researchers and practitioners.

Measurements of EI

EI measurement can be classified into either objective performance tests or self-report questionnaires. Advantages and disadvantages of these measurements are reviewed in this section.

Objective performance tests.

Mental ability EI models are more directly measured by performance tests. The advantage of the objective performance test is to be able to examine an individual's level of performance on a task in controlled experimental settings. Therefore, the performance tests assess respondents' actual EI behaviour such that scores are indicative of maximal attainment of the ability. The assessment of EI as a mental ability is based on the presumption that one's response to the stimuli which assess various aspects of feelings can be classified either as correct or incorrect (Mayer & Salovey, 1997). However, the challenge of this assessment is to determine what to consider a correct response if the stimuli was ambiguous. Ambiguous stimuli include the conditions in which situational, individual, and cultural factors impact respondents' judgments. In this case, how can researchers decide if the respondents' response to a question is emotionally intelligent? Scoring can be difficult in such cases. The inability to establish a reliable and valid scoring system is fatal in cross-cultural studies.

Self-report tests.

Self-report measures appear to be considered less valid as an assessment method of actual performance (Paulhus, Lysy, & Yik, 1998). This is because self-report measures rely on a respondent's self-perception and impression management motives (Mayer et al., 2000). Therefore, response bias is an issue for the validity of the obtained EI scores. Self-

report tests assess typical attributes of the respondent by indicating how he or she typically thinks, feels, and acts in a situation. The merits of these measures are, for example, ease of administration, assessment of an ongoing process of perception, and management of domains in emotional thinking (Matthews et al., 2002). Therefore, this method is relatively easily used in cross-cultural research. In terms of psychometric evidence, nearly all of the self-report scales have satisfactory reliabilities related to well-established personality dimensions (Davies, Stankov, & Roberts, 1998). Generally, research findings show that the scales are positively related to positive affect, emotional openness, and negatively related to negative affect. To date, all trait models of EI are measured using a self-report method.

Thus, it is evident that researchers should be aware of the potential disadvantages of specific types of measures when using them in research. If the researchers decide to use objective performance tests, they will need to be accountable for the scoring system. If they decide to use self-report tests, they will need to be aware of the impact of response bias in the obtained scores. Consequently, in cross-cultural EI research, using self-report tests seems to be the only available option.

Lack of Cross-Cultural EI Studies

When establishing EI as a universal construct, cultural factors need to be taken into consideration. As previously described, cultural differences are evident not only from the individualism-collectivism dimension but also from the other dimensions posited by Hofstede (i.e., PD, MA, UA, LTO). Most studies of EI are reported from Western countries. A few cross-cultural studies of EI have been conducted. Those reported from Eastern countries are limited to China (Shi & Wang, 2007), India (Sibia,

Misra, & Srivastava, 2004), Singapore (Fatt & Howe, 2003), Japan (Fukuda et al., 2011) and Korea (Fukuda, Saklofske, Tamaoka, & Lim, 2010). Two studies reported using African samples (Ekermans, Saklofske, Austin, & Stough, 2011; Gignac & Ekermans, 2010).

To my knowledge, the impact of specific cultural factors on EI has never been discussed in the literature. This literature review demonstrated the differences in the interpretation of the self, cultural display rules, and existence of a variation of empathy (i.e., *omoiyari*) in an Eastern culture. These differences require the investigation of the participants' cultural orientation since it may lead to the differential scores on EI. Based on a societal value of understanding others' feelings to maintain smooth interpersonal relationships in Eastern cultures, people in these cultures may score higher than those in the Western cultures on the perception of others' emotions subscale of EI measures. On the other hand, people in Western cultures may score higher on the perception of self-emotions because Western cultures value emotional expressions more than Eastern cultures. However, these are empirical questions that require study.

Needed Research

The current study attempts to address this most demanding need for a cross-cultural evaluation of EI. In order to study EI as a universal construct and examine the culturally impacting factors (i.e., sympathy, cultural orientation), the following questions should be answered: 1) Do existing EI measures demonstrate factorial invariance across cultures? 2) Does sympathy mediate the relationship between cultural orientation and EI? 3) Is there an effect of cultural group on the relationships explored in question 2?

In addition to filling a gap in the literature reported mostly from Western countries, this study attempted to provide information for psychologists and educators that will allow them to better understand the relationship between EI and cultural orientation and between EI and the empathy/sympathy construct in a country such as Canada which is becoming more multicultural with time.

CHAPTER THREE

METHODOLOGY

Participants

The participants in this study were undergraduate and graduate students enrolled in universities in Canada and in Japan. A non-probability sampling method was used to obtain samples of populations from universities in both countries.

A sample of 200 Canadian participants was recruited from the University of Calgary. Information about this study was provided on bulletin boards and given in classes. Participation in this study was voluntary. A sample of 200 Japanese participants was recruited from the following two universities in Japan: Hiroshima University and Hiroshima University of Economics. Information about this study was given to students in their classes, and those who volunteered to participate received a small honorarium based on Hiroshima university research protocol.

Measure

Seven measures were used to gather information about the students: the College Achievement Inventory (CAI); the Schutte Emotional Intelligence Scale (EIS); the Wong and Law Emotional Intelligence Scale (WLEIS); the Satisfaction with Life Scale (SWLS); the Sympathy Scale (SS); the Self-Construal Scale (SCS); and Mini-Markers (MM). Examples of these measures and their contents are found in Appendix A. Emotional intelligence questionnaires ask how students describe their emotions and others' emotions; other questionnaires ask about the students' psychological well-being, their cultural orientation, and personality traits.

The CAI, the EIS, and the WLEIS are the emotional intelligence measures used in this study. The decision to use these scales was based on the measures' following properties: 1) uses self-report measures; 2) avoids subscales that may reflect cultural differences (i.e., optimism) or known biases; and 3) developed specifically in Western (i.e., the CAI and the EIS) or in Eastern cultures (i.e., the WLEIS). When the study began, the CAI and the WLEIS were relatively new measures and it is believed that this study will provide evidence for their psychometric properties; however, as few studies have reported the validity of the CAI, the EIS was added for its high reliability and validity evidence reported in other studies.

The CAI, the EIS, the WLEIS, the SWLS, and the MM were translated into Japanese by the author, and blindly back-translated by a bilingual native Japanese and a native English speaker. In order to ensure linguistic equivalence, three rounds of back-translation were completed. The author of the SCS provided a Japanese version, and the authors of the SS provided English versions of their measurements.

The College Achievement Inventory (CAI)

The CAI was developed by Wood, Parker, and Taylor (2005) to examine the role of emotional and social competencies in post-secondary academic achievement and retention. The CAI is a self-report measure; a participant rates each item on a 5-point Likert response scale ranging from 1 (strongly disagree) to 5 (strongly agree). Wood et al. originally developed a 102-item CAI measurement, and later a shortened version consisting of 70 items. For the current study, the CAI short-version was employed.

The CAI was designed to obtain independent scores for the following four subscales of emotional and social competencies: Emotional Understanding,

Psychological Mindedness, Attentiveness, and Emotional Self-Control. An average score of these four subscales serves as an overall indicator of a person's EI. In addition to these four subscales, the CAI includes the following four independent scores that were designed to serve as indicators of general social and emotional functioning: Optimism, Social Integration, Performance Anxiety, and Social Anxiety. However, in the current study, only the first four EI subscales were used due to their direct relevance to the examination of the EI construct. The CAI also contains an additional domain, Positive Impression, that detects if the participants try to present themselves in an excessively positive manner.

The internal consistency for the CAI was reported from the following two samples of first year university students, respectively: the 2003/2004 cohorts ($N = 713$) and the 2004/2005 cohorts ($N = 928$) (Wood et al., 2005). Although the subscale, Psychological Mindedness (.63, .62), showed lower than desirable α coefficients, other subscales had satisfactory internal consistency: Emotional Understanding (.87, .83), Attentiveness (.79, .71), and Emotional Self-Control (.73, .64). The test-retest correlation for the CAI was also satisfactory at the four month period (ranging from $r = .65$ to $r = .77$) in a sample of 102 university students and at the eight month period (ranging from $r = .61$ to $r = .73$) in a sample of 456 university students.

The results of the exploratory factor analysis (EFA) on the four emotional and social competency subscales of the data from the 2003/2004 cohort showed the four factors with target loadings at .69 for the Emotional Understanding scale, .57 for the Psychological Mindedness scale, .59 for the Attentiveness scale, and .58 for the Emotional Self-Control scale. These four factors explained 45% of the total variance; the

eigen values were 6.45 for Emotional Understanding, 1.89 for Psychological Mindedness, 1.43 for Attentiveness, and 2.80 for Emotional Self-Control (Wood et al., 2005).

Confirmatory factor analysis (CFA) indicated that the four-factor model fit the data of the sample of the 2004/2005 university students successfully (RMS=.06, GFI=.88, and AGFI=.86) (Wood et al., 2005).

The convergent validity evidence was obtained with a sample of first year university students ($N = 698$) by a second-order CFA; a strong positive correlation (parameter estimate = .806) was found between the scores on the four emotional competency scales of the CAI (Emotional Understanding, Psychological Mindedness, Attentiveness, and Emotional Self-Control) and the scores on the short version of the EQ-i (Intrapersonal, Interpersonal, Adaptability, and Stress Management) (Wood et al., 2005).

The Emotional Intelligence Scale (EIS)

The EIS was developed by Schutte et al. (1998) to assess trait EI based on the EI model developed by Salovey and Mayer (1990). It is a 33-item self-report measure using a 5-point Likert type response format. Schutte et al. (1998) recommended using total scores for its one-factor solution of 33 items. Some other studies replicated the one-factor solution (Brackett & Mayer, 2003); however, other studies focus on sub-factors by looking at three-factor (Austin, Saklofske, Huang, & McKenney, 2004) or four-factor solutions (Ciarrochi et al., 2001; Ciarrochi, Deane, & Anderson, 2002; Petrides & Furnham, 2000; Saklofske, Austin, & Minski, 2003). The four factors were described as follows: Emotion Perception, Utilizing Emotions, Managing Self-Relevant Emotions, and

Managing Others' Emotions (Ciarrochi et al., 2001). Thus, the number of factors for the EIS varies among factor analytic studies.

The internal consistency reliability of the EIS is high ($\alpha = .90$; Schutte et al., 1998). The test-retest correlation for the EIS at a two week period was $r = .78$ which is satisfactory (Schutte et al., 1998). Schutte et al. (1998) provided convergent and discriminant validity evidence from the correlations between the EIS with alexithymia as measured by the Toronto Alexithymia Scale (TAS; $r = -.65, p < .001$) and with three subscales of the Trait Meta Mood Scale: attention to feelings ($r = .63, p < .001$); clarity of feeling ($r = .52, p < .001$); and mood repair ($r = .68, p < .001$). Convergent and discriminant validity evidence was also reported from correlations between the EIS and optimism as measured by the Life Orientation Test ($r = .52, p < .006$); less pessimism as measured by the Life Orientation Test ($r = -.43, p < .025$), less depression as measured by the Zung Depression Scale ($r = -.37, p < .021$) and less impulsivity as measured by the Barratt Impulsiveness Scale ($r = -.39, p < .003$) added further support to the validity of the EIS. Saklofske et al. (2003) also found the expected correlations between the total score of the EIS with lower alexithymia as measured by the TAS ($r = -.52, p < .001$), higher subjective well-being scores measured by the Subjective Happiness Scale ($r = .45, p < .001$) and by the Temporal Satisfaction with Life Scale ($r = .39, p < .001$), and less depression proneness as measured by the Depression Proneness Rating Scale ($r = -.38, p < .001$).

Research reporting correlations with the factors from the Big Five Personality model were not consistent. Schutte et al. (1998) reported that higher scores on the EIS were significantly related to greater openness to experience ($r = .54, p < .009$); however,

the EIS was not significantly associated with any other Big Five dimensions. Contrary to these findings, correlations of the EIS with the Big Five Personality factors were reported in a study of Saklofske et al. (2003); the highest correlation was with extraversion ($r = .51, p < .001$), followed by moderate correlations with conscientiousness ($r = .38, p < .001$), neuroticism ($r = -.37, p < .001$), openness ($r = .27, p < .001$) and agreeableness ($r = .18, p < .01$). Thus, the EIS showed adequate reliability and convergent validity, though more discriminant validity may be needed.

The Wong and Law Emotional Intelligence Scale (WLEIS)

Wong and Law (2002) developed a 16-item self-report measure to measure of EI. They employed the Mayer and Salovey (1997) definition of EI as a set of interrelated skills concerning “the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth” (p. 10). Thus, Wong and Law used the following four dimensions: Self Emotional Appraisal (SEA); Others’ Emotional Appraisal (OEA); Use of Emotion (UOE); and Regulation of Emotion (ROE) based on the distinct dimensions of EI conceptualized by Salovey and Mayer (1990). The WLEIS uses a 7-point Likert type response format.

The ranges of coefficient α for the scales reported in various studies in Wong and Law’s article were satisfactory: 0.86 - 0.92 for SEA; 0.82 - 0.93 for OEA; 0.85 - 0.91 for UOE; and 0.71 - 0.84 for ROE (Wong & Law, 2002). The EFA indicated a clear four-factor structure with the selected 16-items; the average factor loadings of these items on EI dimensions of the WLEIS was .80. The four-factor solution explained 71.5% of the

total variance; the eigen values were 5.01 for the SEA, 2.70 for the ROE, 2.27 for the UOE, and 1.46 for the OEA (Wong & Law, 2002). The CFA indicated that the four-factor model fit the data reasonably well ($\chi^2 = 132.41$; $df = 98$, SRMR = .08, CFI = .95, Tucker-Lewis Index (TLI) = .93 (Wong & Law, 2002). In addition, an acceptable model fit has been reported for the second-order factor structure of the WLEIS, which consists of a general EI factor and the four primary EI subscales (Fukuda et al., 2011; Kafetsios & Zampetakis, 2008; Law et al., 2004; Whitman, Van Rooy, Viswesvaran, & Kraus, 2009; Wong & Law, 2002).

Convergent validity evidence of all EI dimensions is provided from the significant correlations with the Life Satisfaction Measurement which ranged from $r = .16$ to $r = .46$ (Wong & Law, 2002). Moderate correlation with EQ-i ($r = .63$) also shows good convergence with the WLEIS (Wong & Law, 2002).

The EFA results showed the relationships among the four EI scales and the Big Five personality dimensions as follows: UOE and Neuroticism as well as ROE and Conscientiousness loaded together while SEA and OEA did not cross-load with the Big Five factors (Wong & Law, 2002).

The Satisfaction with Life Scale (SWLS)

The Satisfaction with Life Scale (SWLS) was developed to measure global life satisfaction (Diener et al., 1985). It consists of five items and uses a 7-point Likert type response format.

Diener et al. (1985) reported reliability evidence of the SWLS with a high coefficient α of .87 and an adequate test-retest correlation coefficient (.82) for the SWLS over a two month period. Using principal axis factor analysis, Diener et al. (1985) found

a single factor explaining 66% of the variance. The factor loading of each SWLS item was as follows: .84, .77, .83, .72, and .61. CFA conducted in other studies also supported unidimensional structure (Lewis, Shevlin, Bunting, & Joseph, 1995; Shevlin & Bunting, 1994). Using British undergraduate students, Shelvin, Brunsden, and Miles (1998) replicated the above mentioned evidence with high factor loadings ranging from .92 to .98, and high reliability of the scale (.92).

Convergent validity evidence was provided from the correlations between the SWLS and the following subjective well-being measures with the two American samples (Diener et al., 1985): the Fordyce's (1978) single item measure of happiness ($r = .58$ and $.57$); Fordyce's (1978) percent of time happy question ($r = .58$ and $.62$); Tellegen's (1979) well-being subscale of his Differential Personality Questionnaire ($r = .68$); Cantril's (1965) Self-Anchoring Ladder ($r = .62$ and $.66$); Gurin et al.'s (1960) widely used item ($r = .59$ and $.47$); Andrews and Withey's (1976) D-T scale ($r = .68$ and $.62$); Campbell, Converse, and Rodgers' (1976) semantic differential-like scale ($r = .75$ and $.59$); and Bradburn's (1969) Affect Balance Scale – Positive Affect Scale ($r = .50$ and $.51$) as well as Negative Affect Scale ($r = -.37$ and $-.32$) (as cited in Diener et al., 1985).

The Self-Construal Scale (SCS)

The SCS was developed by Singelis (1994) to measure the degree of an individual's orientation in two dimensions of self-construal, interdependent and independent. The original SCS was developed as a 24-item measurement, and six more items were added to improve reliabilities of the original scale; therefore, the latest SCS is a 30-item self-report measurement using a 5-point Likert-response scale (Singelis et al., 2006). In the current study, the 30-item SCS was utilized.

Singelis et al. (2006) reported adequate internal consistency of the 30-item SCS with two samples ($N = 61, N = 68$) for the independent subscale ($\alpha = .72, .72$) and for the interdependent subscale ($\alpha = .74, .75$). Test-retest reliability coefficients of the 30-item SCS at the average time of 24 days between the first and second administration reported as $r = .57$ for the independent dimension and $r = .66$ for the interdependent dimension (Singelis et al., 2006). Factor structure of a 24-item SCS was demonstrated with the two-factor solution, which explained 25.1% of the total variance. The two subscale scores were reported as virtually uncorrelated (Singelis, 1994). Hardin, Leong, and Bhagwat (2004) examined the 30-item SCS and showed that the EFA results indicated that two factor solutions provided a better fit than the one factor solution. In addition, the results of the EFA and CFA of the 30-item SCS were similar to the pattern of loadings obtained in the Singelis's study using PCA with 24 items. However, there were three exceptions in which three items loaded onto both factors (Hardin et al., 2004).

Singelis and Sharkey (1995) provided criterion validity evidence with the correlation between the 24-item SCS and the Embarrassability Scale (ES) by using Euro-Americans and Asian Americans. The results support the conclusion that self-construals and embarrassability are related in similar ways within different ethnocultural groups; stronger independent self-construals were correlated with resistance to embarrassment while stronger interdependent self-construals were correlated with increased susceptibility to embarrassment (Singelis & Sharkey, 1995).

The Sympathy Scale (SS)

The 22-item Sympathy scale, developed by Uchida and Kitayama (2001), uses a 5-point Likert type response format, and is designed to measure sympathy or an empathy-

like Japanese construct called omoiyari. Omoiyari consists of three functions: the motivational impetus of prosocial behaviours, empathetic abilities, and an intuitive understanding of other's feelings (Uchida & Kitayama, 2001).

In developing the SS, Uchida and Kitayama (2001) originally prepared 55 items. The EFA results showed the following four factors: kindness to the weak, sentimentalism, rigorous criteria for others, and empathy for hardship or unhappiness. They selected 22 out of 55 items that highly loaded onto these factors. When they conducted a factor analysis with the selected 22-items, two factors emerged with eigen values of 4.34 for the first factor and 1.52 for the second factor. Based on the fact that the sentimentalism factor created a separate factor, the authors employed a one-factor structure, which only explained for 19.8% of the total variance. However, they argued that the items covered a broad range of topics. To support this, Uchida and Kitayama (2001) indicated the high reliability of the SS ($\alpha = .84$). They also reported the relationship between omoiyari and prosocial behaviours, emotional empathy, self-esteem and the two construals of self. Omoiyari was positively correlated with both a reported frequency of prosocial behaviours ($r = .35, p < .001$) and emotional empathy (emotional warmth: $r = .72, p < .001$; emotional coldness (reverse wording): $r = .70, p < .001$) (Uchida & Kitayama, 2001). Omoiyari also positively correlated with the interdependent construal of self ($r = .55, p < .001$) while self-esteem positively correlated with the independent construal of self ($r = .30, p < .001$). The results of the factor analysis provided evidence that omoiyari and interdependent construal of self formed the first factor while self-esteem formed the second factor with independent construal of self. Moreover, omoiyari did not show a significant correlation with self-esteem ($r = .02, ns$)

and with independent construal of self ($r = .06$, ns). Self-esteem was also not significantly correlated with interdependent construal of self ($r = -.04$, ns; Uchida & Kitayama, 2001).

Mini-Markers (MM)

The Mini-Markers were developed by Saucier (1994) as a brief version of Goldberg's Unipolar Big-Five Markers consisting of 100 adjective markers. It is a self-report measure of the Big Five personality factor domains: Extraversion, Agreeableness, Conscientiousness, Emotional Stability and Openness to Experience (or Intellect). Saucier (1994) examined the 100 markers and selected an optimally robust subset of 40 adjectives to make a briefer marker that might be advantageous for certain assessment conditions. This abbreviated marker is the MM, a self-report measurement of 40-adjectives; a respondent rates how well each adjective describes himself or herself on a 9-point Likert response scale.

A varimax-rotated factor loading of the selected items on the five factors ranges from .51 to .83. Adequate internal consistency of the MM was also reported as coefficient α ranging from .74 to .83 (Saucier, 1994). Evidence of criterion validity was obtained by correlating the two measures of the big five traits: Goldberg's Big Five questionnaire (Goldberg, 1999) and the MM (Saucier, 1994), with life satisfaction measured by the SWLS and emotional intelligence measured by the EIS (Palmer & Loveland, 2004). Convergent validity evidence was provided from the correlations between Goldberg's Big Five questionnaire and the MM, which ranged from $r = .561$ ($p < .001$) to $r = .852$ ($p < .001$) (Palmer & Loveland, 2004).

In the current study, considering the number of questionnaires that participants needed to complete, a total of 25 adjectives, four to six adjectives for each factor, were

selected to shorten the time required by participants to complete the questionnaires. The selection of adjectives was mainly based on higher factor loadings on each factor. In addition, the adjectives that were not easily translated into Japanese were removed as they did not maintain language equivalence. Thus, the modified MM was created to use in the time restricted research condition.

Procedure

Ethics approval was received from the Conjoint Faculties Research Ethics Board at the University of Calgary (Appendix B). The researcher and the research collaborators conducted all testing and data gathering sessions, which took about 30 to 45 minutes in individual or group sessions in available classrooms.

All participants who volunteered for this study received an information letter containing the details of the study and their rights regarding their participation (Appendix C). They completed the self administered survey (Appendix A) containing seven measures in one testing session. A counterbalancing procedure was employed to control possible order effects of the measures; the participants completed one of the four copies of the survey packages. The participants also provided demographic information (i.e., age, grade, gender, first language, parental educational background, GPA) that was asked for in the survey package. After receiving the completed survey, the data were scored and entered into the statistical program, PASW Statistics 17.0.

Data Analysis

Missing values comprising less than 1% of data were imputed by a stochastic regression imputation method using LISREL 8.80 (Jöreskog & Sörbom, 2006).

Internal consistency of all the measurements was estimated using Cronbach's α coefficient. Maximum-likelihood confirmatory factor analysis (CFA) was used to examine the factor structure of the measurements. A multi-group CFA was conducted to test the invariance of the measurement between two cultural groups. Structural equation modeling (SEM) was employed to examine the direct impact of cultural orientation factors on sympathy and on EI as well as the indirect impact of the cultural orientation factors to EI through sympathy.

The following four measures of fit were used to evaluate the adequacy of the model in CFA and SEM: chi-square; non-normed fit index (NNFI; Bentler & Bonett, 1980); comparative fit index (CFI; Bentler, 1990); and root mean square error of approximation (RMSEA; Steiger, 1990). Values equal to or above .90 show an acceptable fit for the NNFI and the CFI, and the values equal to or less than .08 are an acceptable fit for the RMSEA (Kline, 2005). When model fit discrepancies occur among the NNFI, the CFI and the RMSEA, the NNFI and the CFI were prioritized over the RMSEA in judging the acceptable model fit because the RMSEA can be overly sensitive to fluctuations in sample size and model complexity.

In calculating indirect effects in SEM, the sampling distribution of the product term is not normally distributed. Therefore, the Monte Carlo Method for Assessing Mediation (MacKinnon, Lockwood, & Williams, 2004) was employed using an online utility (Selig & Preacher, 2008) to test the indirect effects.

CHAPTER FOUR

RESULTS

Subject Groups

A total of 206 Canadian students participated in this study and completed the questionnaires. However, six students indicated that their first languages were not English. Consequently, the data for these six participants were removed from analysis. Therefore, the Canadian sample ($N = 200$) included 39 males (19.5%) and 161 females (80.5%) and the mean age was 26.78 years ($SD = 5.78$). A total of 200 Japanese students including 86 males (43%) and 114 females (57%) participated in this study and completed the questionnaires. The mean age of the Japanese sample ($N = 200$) was 20.55 years ($SD = 1.48$).

Data Analysis

Descriptive statistics were calculated using PASW Statistics 17. Then, confirmatory factor analyses (CFA) and structural equation modeling (SEM) were conducted using LISREL 8.80 (Jöreskog & Sörbom, 2006).

Descriptive Statistics

The means and standard deviations of the three EI measurements (CAI, EIS, and WLEIS) total and subtest scores are presented in Table 1. Similarly, the means and standard deviations of the other measurements are presented in Table 2.

Table 1.

Participants' Means and Standard Deviations Between Groups on EI Measurements

Domains of scale	Canadian <i>n</i> = 200		Japanese <i>n</i> = 200	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
CAI domains				
Emotional Understanding	3.80	.73	3.19	.77
Psychological Mindedness	3.76	.57	3.39	.49
Attentiveness	3.58	.74	3.12	.65
Emotional Self-Control	3.35	.66	3.45	.67
Total CAI (four EI domains)	3.62	.51	3.28	.45
Positive Impression	3.87	.56	3.31	.62
EIS domains				
Emotion Perception	3.78	.50	3.10	.65
Utilizing Emotions	3.86	.47	3.71	.60
Managing Self-Relevant Emotions	3.79	.51	3.35	.59
Managing Other's Emotions	3.77	.46	3.37	.58
Total EIS	3.79	.38	3.34	.48
WLEIS domains				
Self-Emotion Appraisal	5.57	.93	4.57	1.15
Other's Emotion Appraisal	5.55	.80	4.27	1.22
Use of Emotion	5.55	.99	4.35	1.18
Regulation of Emotion	4.77	1.22	3.94	1.30
Total WLEIS	5.36	.70	4.28	.85

Note. CAI = College Achievement Inventory; EIS = Emotional Intelligence Scale; WLEIS = Wong and Law Emotional Intelligence Scale.

Table 2.

Participants' Means and Standard Deviations Between Groups on SCS, SS, SWLS, and MM

Domains of scale	Canadian <i>n</i> = 200		Japanese <i>n</i> = 200	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
SCS				
Independent	4.90	.62	4.33	.74
Interdependent	4.74	.58	4.74	.65
SS				
Total SS	3.88	.43	3.52	.51
SWLS				
Total SWLS	5.25	1.08	3.71	1.22
MM				
Extraversion	5.95	1.53	4.92	1.77
Agreeableness	7.59	1.01	5.84	1.21
Conscientiousness	6.55	1.40	4.80	1.34
Neuroticism	5.26	1.46	4.10	1.37
Openness	6.89	1.13	5.46	1.21

Note. SCS = Self-Construal Scale; SS = Sympathy Scale; SWLS = Satisfaction with Life Scale; MM = Mini-Markers.

Internal Consistency

Internal consistencies of the seven measures were calculated with Cronbach's coefficient α (Table 3, 4, 5, 6). Based on Nunnally's (1978) recommendation of .70 or higher as acceptable reliability, most of the domains of measurements were deemed satisfactory for both cultural groups.

According to DeVellis (1991), reliability between .65 and .70 shows minimally acceptable internal consistencies. In the current study, for both cultural groups, some minimally acceptable internal consistencies were reported: Canadian group – a domain of EIS (i.e., Managing Other's Emotions) and a domain of SCS (i.e., Interdependent); Japanese group – a domain of EIS (i.e., Utilizing Emotions), and four domains of MM (Agreeableness, Conscientiousness, Emotional Stability, Openness).

In addition, a total of five domains showed less satisfactory internal consistency reliabilities: Canadian group – a domain of CAI (i.e., Psychological Mindedness) and a domain of EIS (i.e., Utilizing Emotions); Japanese group – three domains of CAI (i.e., Psychological Mindedness, Attentiveness, Emotional Self-Control).

Thus, in further analysis, it became evident that caution is needed when interpreting EIS and using the CAI because the CAI may not be a reliable EI measure, especially for the Japanese group.

Table 3.

Internal Consistency Reliabilities for the EI Measurements

Scales Domains	Number of Items	Canadian (<i>n</i> = 200)	Japanese (<i>n</i> = 200)
CAI			
Emotional Understanding	8	.864	.824
Psychological Mindedness	6	.643	.275
Attentiveness	7	.805	.637
Emotional Self-Control	7	.718	.634
Total CAI (four EI domains)	28	.881	.798
Positive Impression	8	.746	.718
EIS			
Emotion Perception	10	.816	.835
Utilizing Emotions	6	.626	.678
Managing Self-Relevant Emotions	9	.788	.745
Managing Other's Emotions	8	.678	.722
Total EIS	33	.885	.893
WLEIS			
Self-Emotion Appraisal	4	.868	.816
Other's Emotion Appraisal	4	.808	.882
Use of Emotion	4	.813	.745
Regulation of Emotion	4	.894	.871
Total WLEIS	16	.872	.863

Note. CAI = College Achievement Inventory; EIS = Emotional Intelligence Scale; WLEIS = Wong and Law Emotional Intelligence Scale.

Table 4.

Internal Consistency Reliability for the SWLS, and SS

Domains of scale	Number of Items	Canadian (n = 200)	Japanese (n = 200)
Total SWLS	5	.870	.818
Total SS	22	.762	.822

Note. SWLS = Satisfaction with Life Scale; SS = Sympathy Scale.

Table 5.

Internal Consistency Reliability for the SCS

Domains of scale	Number of Items	Canadian (n = 200)	Japanese (n = 200)
Independent	15	.730	.775
Interdependent	15	.689	.724

Note. SCS = Self-Construal Scale.

Table 6.

Internal Consistency Reliability for the MM

Domains of scale	Number of Items	Canadian (n = 200)	Japanese (n = 200)
Extraversion	5	.831	.824
Agreeableness	4	.775	.690
Conscientiousness	5	.795	.677
Emotional Stability (Neuroticism)	5	.744	.652
Intellect or Openness	6	.761	.686

Note. MM = Mini-Markers.

Correlations Among Three EI measurements

The correlations between the total scores of the WLEIS and the EIS, between the WLEIS and the CAI, and between the EIS and the CAI, were calculated to determine the concurrent validity of these three EI measures. Table 7 and 8 present the results for the Canadian and the Japanese university students, respectively.

The results indicated the correlation between the WLEIS and the EIS for the Japanese group was highly correlated ($r = .757$) followed by the relatively high correlations between the WLEIS and the EIS for the Canadian group ($r = .684$), the WLEIS and the CAI for the Canadian ($r = .598$) and the Japanese groups ($r = .579$), and the EIS and the CAI for the Canadian group ($r = .578$). The correlation between the EIS and the CAI for the Japanese group ($r = .485$) was moderate.

Table 7.

Correlations among the three EI measures (Canada)

Correlations			
	WLEIS	EIS	CAI
WLEIS	1.00	-	-
EIS	.684**	1.00	-
CAI	.598**	.578**	1.00

$N = 200$. ** $p < .01$.

Table 8.

Correlations among the three EI measures (Japan)

Correlations			
	WLEIS	EIS	CAI
WLEIS	1.00	-	-
EIS	.757**	1.00	-
CAI	.579**	.485**	1.00

$N = 200$. ** $p < .01$.

CFA and SEM Results

CFA and SEM models were constructed to answer the research questions focusing on comparisons in model structures. These models consist of two cultural orientation constructs (i.e., individualism/independent construal of self, and collectivism/interdependent construal of self), a sympathy construct, and an EI construct.

CFA was used to test the measurement invariance while SEM was used to test the mediating effect of sympathy as well as cultural group's influence on this effect.

Since various studies have clearly reported a four structure for the WLEIS (Fukuda et al., 2011; Law et al., 2004; Shi & Wang, 2007; Wong & Law, 2002), initial models will be fit using these four factors. In subsequent models, the WLEIS will be replaced by the EIS, and by the CAI.

WLEIS

The configural, weak, and strong invariance between the two cultural groups were tested using the multi-group CFA for the model of the WLEIS (Figure 2). In this model, item scores were used for the WLEIS due to the importance of examining the EI measure with full information (e.g., exact relations among items) and the possible disadvantages of using the parceled scores. A parceled score can be defined as “an aggregated-level indicator comprised of the sum (or average) of two or more items, responses, or behaviours” (Little, Cunningham, Shahar, & Widaman, 2002, p. 152). The disadvantages of parceling include the possibility of failure to identify model misspecification and an increase in Type-II error rate (see Little et al., 2002). Despite these disadvantages, when using many scales in the model, parceled scores have several statistical advantages such as improvement of model fit by aggregating across random and systematic error components. Therefore, parceled scores were used for the other measurements (i.e., cultural orientation and sympathy) in the model. When creating parcels, the facet representative approach was used. Facet representative parcels are internally consistent. Each parcel is a “facet” or singular dimension of the construct. Therefore, the advantage of this approach is its ability to maintain the multidimensional features of the construct

clearly and allow the unique component of a facet to associate with other constructs in the model (Little et al., 2002). The mean levels of the indicators were of little concern; therefore, balanced parcels were created based on a simple examination of the factor loadings (Little et al., 2002).

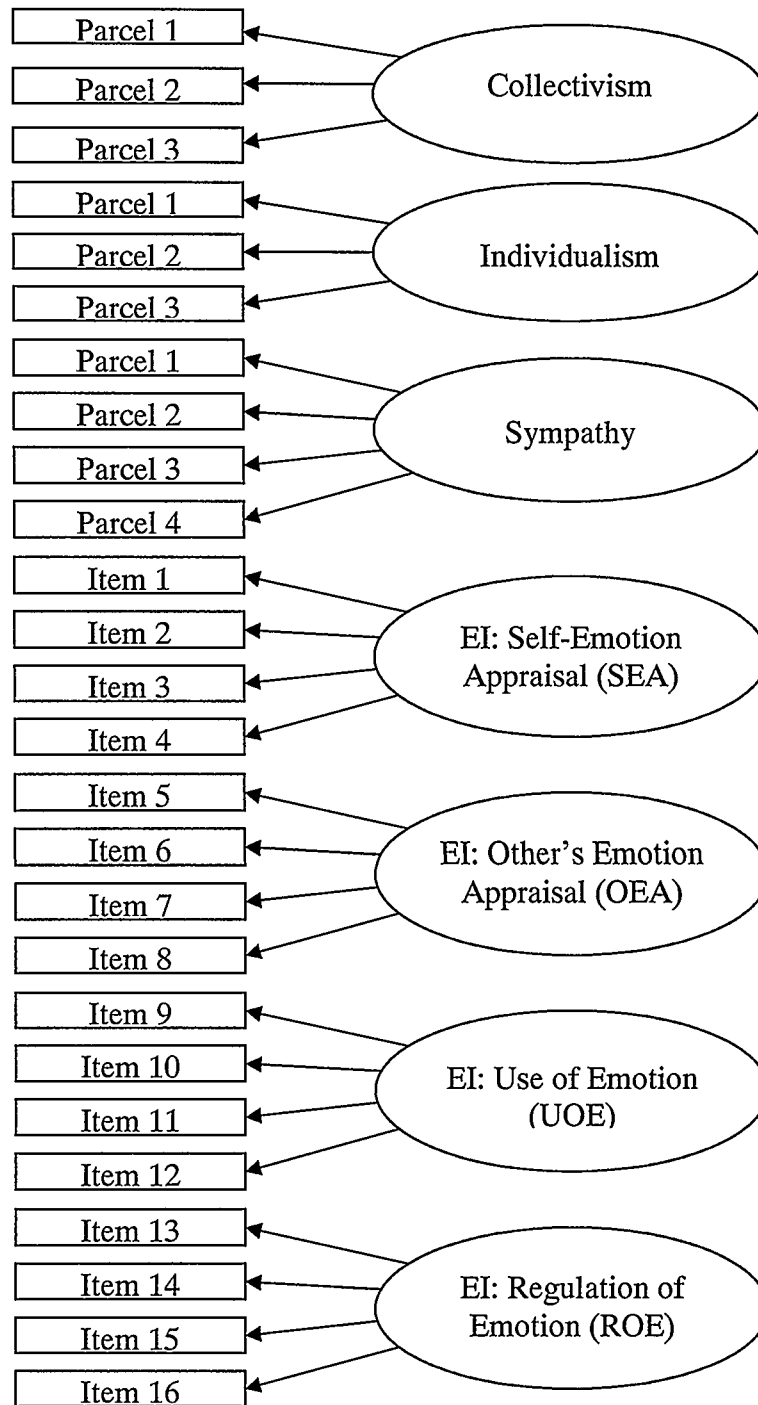


Figure 2. CFA with Four-Factor WLEIS Constructs (Full Model).

Note: All latent covariances were included in the above model.

The results supported the configural and weak invariance models (Table 9). The configural model indicated that the relative pattern of factor loadings is equivalent between the Canadian and the Japanese groups. The weak invariance model supported the equivalent factor loadings between the groups; a single unit of change in an item's score will be scaled to an equal change in the factor score in both groups for all items of all measurements in the model. However, the strong invariance model was not supported (Table 9). This suggests that the intercepts (or means) for all items are not equal between groups. Thus, score comparisons between cultural groups are not directly comparable or meaningful. The item score will depend on the student's cultural group. Measurement invariance was not established.

Table 9.

Fit Indices for Configural, Weak, and Strong Invariance Models for the WLEIS (Raw Item Scores)

Invariance Model	$\chi^2(df)$	p	RMSEA	90% CI for RMSEA	NNFI	CFI	ΔCFI
Configural	937.73 (556)	< .001	.055	.048 - .061	.954	.961	
Weak	1024.74 (582)	< .001	.058	.051 - .064	.948	.954	.007
Strong	1382.81 (601)	< .001	.078	.072 - .083	.907	.914	.040

Since measurement invariance was not established, the model was tested separately in both cultures. The fit indices for the models indicated a good fit to the observed data for both cultural groups: Canada: $\chi^2_{(n=200, df=278)} = 450.98$, $p < .001$, NNFI = .957, CFI = .963, and RMSEA = .052, 90% CI for RMSEA = (.042; .062), and Japan: $\chi^2_{(n=200, df=278)} = 486.76$, $p < .001$, NNFI = .951, CFI = .958, and RMSEA = .057, 90% CI for RMSEA = (.047; .066). Table 10 presents the parameter estimates for both groups. Table 11 and 12 show the latent covariances for the Canadian and the Japanese groups, respectively.

Table 10.

Factor Loadings and Standard Errors for the CFA Model using the WLEIS

Path (in Figure 2)	Parameter Estimates	Canada		Japan		
		Standard Error	Standardized Parameter Estimates	Parameter Estimates	Standard Error	Standardized Parameter Estimates
WLEIS: SEA						
Item 1	.842**	.066	.779	.964**	.091	.683
Item 2	1.030**	.060	.939	1.257**	.083	.886
Item 3	1.000**	.065	.882	1.233**	.080	.897
Item 4	.627**	.074	.570	.738**	.104	.492
WLEIS: OEA						
Item 5	.645**	.078	.572	1.000**	.080	.770
Item 6	.866**	.061	.867	1.328**	.086	.889
Item 7	.664**	.063	.694	1.136**	.097	.741
Item 8	.731**	.056	.814	1.115**	.079	.839
WLEIS: UOE						
Item 9	.812**	.083	.659	1.092**	.103	.700
Item 10	.876**	.092	.646	.524**	.121	.323
Item 11	.998**	.083	.774	1.283**	.097	.834
Item 12	.904**	.065	.858	1.257**	.099	.808
WLEIS: ROE						
Item 13	1.057**	.082	.779	1.063**	.096	.708
Item 14	1.231**	.073	.924	1.201**	.086	.833
Item 15	1.046**	.101	.663	1.184**	.105	.720
Item 16	1.235**	.073	.929	1.390**	.086	.917
Sympathy						
Parcel 1	.421**	.037	.813	.468**	.0420	.747
Parcel 2	.215**	.036	.456	.317**	.0428	.532
Parcel 3	.375**	.049	.565	.579**	.0451	.838
Parcel 4	.473**	.070	.509	.373**	.0782	.358
Collectivism						
Parcel 1	.320**	.047	.497	.594**	.0560	.722
Parcel 2	.597**	.054	.817	.584**	.0481	.807
Parcel 3	.587**	.061	.718	.560**	.0532	.717
Individualism						
Parcel 1	.543**	.062	.655	.591**	.0631	.662
Parcel 2	.505**	.052	.720	.753**	.0627	.822
Parcel 3	.515**	.059	.646	.609**	.0618	.690

** $p < .01$

Table 11.

Latent Covariances for the WLEIS (Canada)

Construct	Parameter Estimates (Standard Error)				Sympathy	Collectivism
	WLEIS: SEA	WLEIS: OEA	WLEIS: UOE	WLEIS: ROE		
WLEIS: SEA	1.00	-	-		-	-
WLEIS: OEA	.442** (.066)	1.00	-		-	-
WLEIS: UOE	.368** (.070)	.243** (.079)	1.00		-	-
WLEIS: ROE	.434** (.063)	.144 † (.077)	.417** (.067)	1.00		-
Sympathy	.249** (.081)	.503** (.072)	.241** (.085)	.072 (.084)	1.00	
Collectivism	-.037 (.084)	.099 (.086)	-.026 (.087)	.107 (.083)	.473** (.079)	1.00
Individualism	.390** (.077)	.223* (.087)	.529** (.072)	.427** (.074)	.176 † (.095)	-.135 (.094)

† $p < .1$. * $p < .05$. ** $p < .01$.

Table 12.

Latent Covariances for the WLEIS (Japan)

Construct	Parameter Estimates (Standard Error)				Sympathy	Collectivism
	WLEIS: SEA	WLEIS: OEA	WLEIS: UOE	WLEIS: ROE		
WLEIS: SEA	1.00	-	-		-	-
WLEIS: OEA	.456** (.064)	1.00	-		-	-
WLEIS: UOE	.410** (.070)	.145 † (.080)	1.00		-	-
WLEIS: ROE	.419** (.066)	.417** (.066)	.423** (.069)	1.00		-
Sympathy	.246** (.079)	.365** (.074)	.413** (.075)	.269** (.078)	1.00	
Collectivism	.084 (.083)	.149 † (.082)	.308** (.080)	.083 (.083)	.629** (.062)	1.00
Individualism	.488** (.068)	.233** (.080)	.484** (.071)	.207* (.081)	.217* (.086)	.158 † (.088)

† $p < .1$. * $p < .05$. ** $p < .01$.

The second model (Figure 3) was tested by CFA because the theoretical expectation of the WLEIS is that it will be comprised of four underlying factors corresponding to the measure's four subscales that are themselves indicators of a global EI factor. The fit indices for the second model also indicated a good fit to the observed data: Canada: $\chi^2_{(n=200,df=289)} = 500.71, p < .001$, NNFI = .947, CFI = .953, and RMSEA = .058, 90% CI for RMSEA = (.049; .067), and Japan: $\chi^2_{(n=200,df=289)} = 533.62, p < .001$, NNFI = .943, CFI = .949, and RMSEA = .061, 90% CI for RMSEA = (.052; .070).

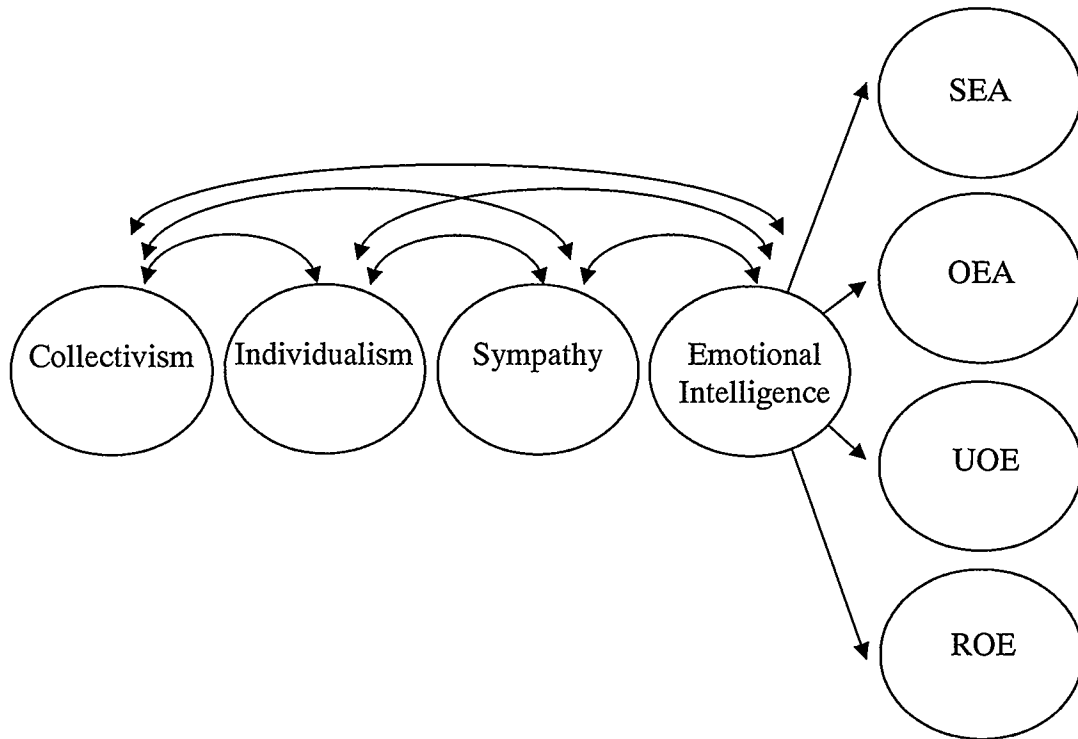


Figure 3. CFA with Global WLEIS Construct (Restricted Model).

The chi-square difference statistic was used to test the change in fit with the addition of the second order factor. The results of the chi-square difference test for the Canadian and the Japanese groups were as follows: Canadian: $\Delta \chi^2(11) = 49.729$, $p < .001$; Japanese: $\Delta \chi^2(11) = 46.862$, $p < .001$. Because the differences in the chi-squared statistics between the full and restricted models for both samples are significant and positive, the model with only the four correlated first order constructs is describing the observed data significantly better than the model including the second order factor. Therefore, the first model [full model] was used in further SEM analyses.

An indirect model (Figure 4) tested in the SEM was derived from the first model tested in the CFA (Figure 2). This indirect model included the following paths: 1) a correlated path between two cultural constructs, individualism and collectivism (i.e., path e); 2) six correlated paths among four underlying EI factors (i.e., path f1, f2, f3, f4, f5, and f6); 3) eight direct paths from the two cultural orientation constructs to EI subscales (i.e., path c1, c2, c3, c4, d1, d2, d3 and d4); and 4) two paths from the cultural orientation constructs to sympathy (path a1 and a2) to the four paths to the EI subscales (i.e., path b1, b2, b3, and b4).

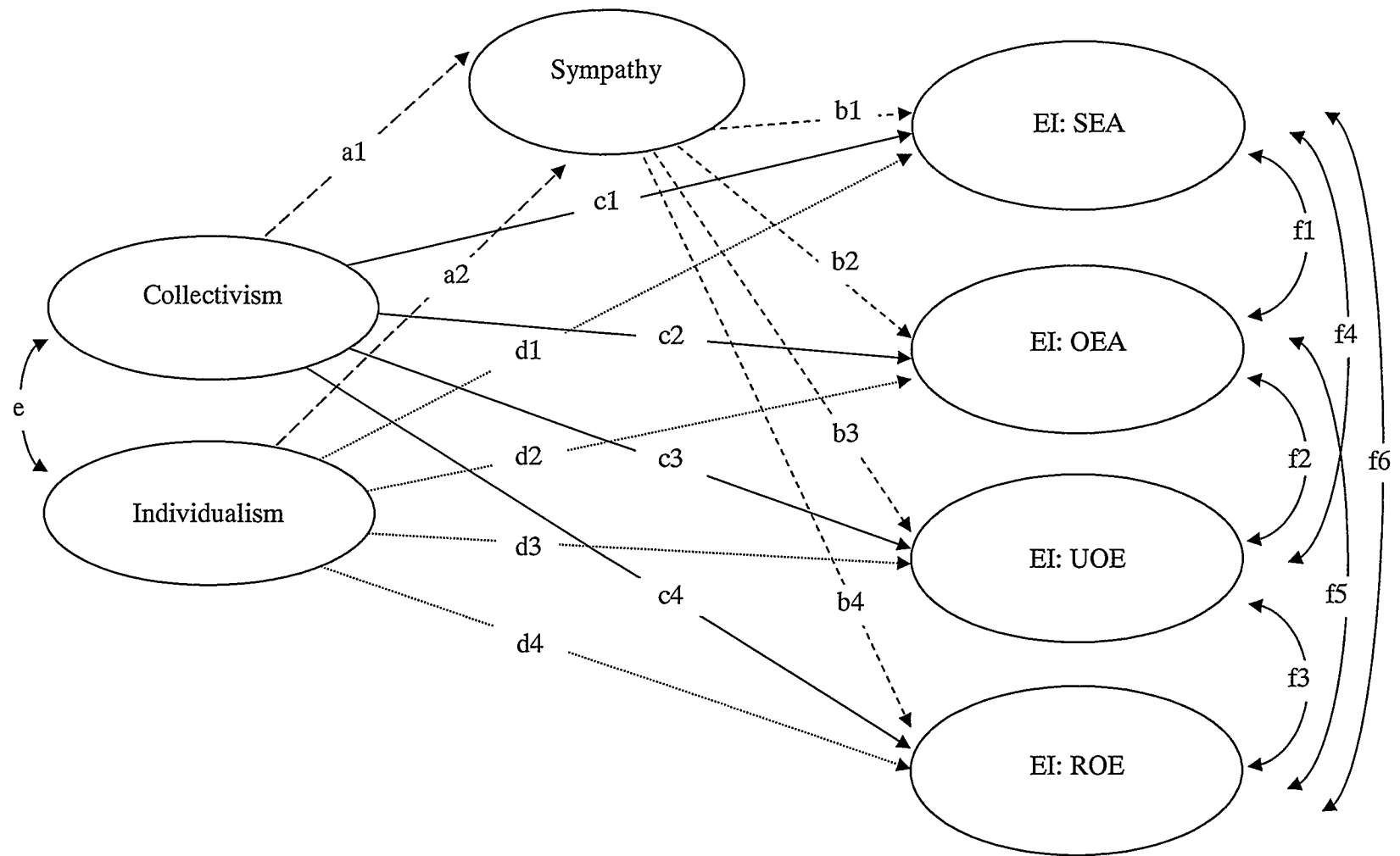


Figure 4. SEM Indirect Model for the WLEIS.

The results indicated that the model demonstrated a good fit for the observed data for both cultures: Canada: $\chi^2_{(n=200,df=278)} = 450.98, p < .001$, NNFI = .957, CFI = .963, and RMSEA = .052, 90% CI for RMSEA = (.042; .062), and Japan: $\chi^2_{(n=200,df=278)} = 486.76, p < .001$, NNFI = .951, CFI = .958, and RMSEA = .057, 90% CI for RMSEA = (.047; .066). The indirect effects were calculated using a type of bootstrapping, the Monte Carlo method for assessing mediation (Selig & Preacher, 2008). The 95% bootstrapped CIs for the indirect effect of collectivism on the following four EI subscales through sympathy were as follows, Canada and Japan, respectively: SEA: 95% CI = (.017; .280), (.006; .342); OEA: 95% CI = (.154; .556), (.109; .487); UOE: 95% CI = (-.020; .257), (.045; .414); and ROE: 95% CI = (-.201; .050), (.054; .397). The 95% bootstrapped CIs for the indirect effect of individualism on the following four EI subscales through sympathy were as follows, Canada and Japan, respectively: SEA: 95% CI = (.003; .158), (-.010; .101); OEA: 95% CI = (.032; .320), (-.015; .148); UOE: 95% CI = (-.011; .141), (-.012; .122); and ROE: 95% CI = (-.111; .024), (-.011; .120). Table 13 presents the parameter estimates for both groups. Appendix D presents a sample R codes (i.e., collectivism to WLEIS: SEA subscale through sympathy) that were created by using the on-line utility (Selig & Preacher, 2008).

For the Canadian group, the CIs for the indirect paths from individualism to the two subscales of the EI (i.e., SEA, OEA) through sympathy indicated significance, which suggest sympathy was mediating the level of these two subscales. However, one of the two EI subscales, SEA, has a significant direct path from individualism as well; the higher the Canadian student's individualism score, the higher the SEA score. Therefore, the relationship between individualism and the SEA subscale is explained both by the

direct and indirect paths. Since the direct path from individualism to OEA was not significant, only the indirect path from individualism to the OEA subscale explained the relationship between individualism and OEA. The CIs for the indirect paths from individualism to the other subscales of the EI (i.e., UOE, ROE) through sympathy showed non-significance. Therefore, only the significant direct path explained the relationship from individualism to the UOE and the ROE subscales.

Similar to the paths from individualism, the CIs for the two indirect paths from collectivism to the EI subscales (i.e., SEA, OEA) indicated significance, which suggest sympathy was mediating the level of these two subscales of EI. These results suggest that the higher the Canadian student's collectivism score, the higher the sympathy score, which leads to the higher scores on the EI: SEA and the EI: OEA subscales. Among all direct paths, only the path from collectivism to ROE was significant, which indicates that the higher the Canadian student's collectivism score, the higher the score on the EI: ROE subscale. Neither direct nor indirect paths explain the student's scores from collectivism to the EI: UOE subscales.

For the Japanese group, the CIs for the indirect paths from individualism to all the four EI subscales through sympathy indicated non-significance, which suggests sympathy was not mediating the level of any subscales of EI. However, three of the four EI subscale (i.e., SEA, OEA, and UOE) have significant direct paths from individualism. Consequently, the direct paths from individualism to these EI subscales imply that the EI scores are predicted by the individualism score: the higher the Japanese student's individualism score, the higher the SEA, the OEA, and the UOE scores. Neither direct

nor indirect paths explain the student's scores from individualism to the EI: ROE subscale.

On the other hand, none of the direct paths from collectivism to the EI subscales were significant. However, the CIs for all indirect paths from collectivism to the EI subscales through sympathy indicated significance. This suggests that sympathy explains all of the relationship between collectivism and EI: the higher the level of the Japanese student's collectivism score, the higher the sympathy score, which leads to the higher EI subscale scores. Thus, sympathy was completely mediating the level of EI subscales.

Although between the Canadian and Japanese groups various differences exist in the significant paths, the common significant paths for both cultural groups were the direct paths from individualism to the SEA and to the UOE subscales as well as the indirect paths from collectivism to the SEA and to the OEA subscales through sympathy.

Table 13.

Parameter Estimates and Standard Errors for Each Path in the WLEIS Indirect Model

			Canada			Japan		
Path (Paths in Figure 4)			Parameter Estimates	Standard Error	Standardized Parameter Estimates	Parameter Estimates	Standard Error	Standardized Parameter Estimates
Direct Path								
Collectivism	→ EI:SEA	(c1)	-.118	.114	-.106	-.155	.130	-.132
Collectivism	→ EI:OEA	(c2)	-.177	.127	-.150	-.154	.128	-.140
Collectivism	→ EI:UOE	(c3)	-.049	.123	-.041	.080	.135	.066
Collectivism	→ EI:ROE	(c4)	.259*	.120	.228	-.157	.125	-.149
Individualism	→ EI:SEA	(d1)	.372**	.104	.334	.538**	.105	.460
Individualism	→ EI:OEA	(d2)	.124	.107	.105	.181*	.092	.165
Individualism	→ EI:UOE	(d3)	.591**	.124	.493	.506**	.109	.412
Individualism	→ EI:ROE	(d4)	.542**	.116	.478	.169	.090	.159
Collectivism	→ Sympathy	(a1)	.597**	.126	.506	.794**	.133	.610
Individualism	→ Sympathy	(a2)	.288*	.113	.244	.157	.103	.121
Sympathy	→ EI:SEA	(b1)	.226*	.100	.240	.207*	.102	.230
Sympathy	→ EI:OEA	(b2)	.558**	.123	.555	.352**	.103	.417
Sympathy	→ EI:UOE	(b3)	.176	.108	.174	.267*	.109	.283
Sympathy	→ EI:ROE	(b4)	-.115	.101	-.120	.267**	.099	.328
Indirect Path								
Collectivism	→ Sympathy → EI:SEA	(a1 times b1)	.135*	-	-	.164*	-	-
Collectivism	→ Sympathy → EI:OEA	(a1 times b2)	.333*	-	-	.279*	-	-
Collectivism	→ Sympathy → EI:UOE	(a1 times b3)	.105	-	-	.212*	-	-
Collectivism	→ Sympathy → EI:ROE	(a1 times b4)	-.069	-	-	.212*	-	-
Individualism	→ Sympathy → EI:SEA	(a2 times b1)	.065*	-	-	.032	-	-
Individualism	→ Sympathy → EI:OEA	(a2 times b2)	.161*	-	-	.055	-	-
Individualism	→ Sympathy → EI:UOE	(a2 times b3)	.051	-	-	.042	-	-
Individualism	→ Sympathy → EI: ROE	(a2 times b4)	-.033	-	-	.042	-	-

Correlational Path							
Collectivism and Individualism	(e)	-.135	.094	-.135	.158	.088	.158
EI: SEA and EI:OEA	(f1)	.340**	.080	.442	.366**	.076	.456
EI:OEA and EI:UOE	(f2)	.071	.098	.243	-.086	.092	.145
EI: UOE and EI: ROE	(f3)	.269**	.086	.417	.333**	.081	.423
EI: SEA and EI: UOE	(f4)	.174*	.088	.368	.192*	.090	.410
EI: OEA and EI: ROE	(f5)	.101	.092	.144	.329**	.075	.417
EI: SEA and EI: ROE	(f6)	.361**	.075	.434	.338**	.076	.419

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

EIS

The second measure to be tested was the EIS. The configural, weak, and strong invariance between the two cultural groups were tested using the same multi-group CFA employed in the sections above with the EIS replacing the WLEIS.

The first model was evaluated using the item scores for the EIS as was done for the WLEIS. Although the results of the EIS also supported the configural and weak invariance models, the strong invariance model was not supported (Table 14). Consequently, measurement invariance was not established.

Table 14.

Fit Indices for Configural, Weak, and Strong Invariance Models for the EIS (Raw Item Scores)

Invariance Model	$\chi^2(df)$	p	RMSEA	90% CI for RMSEA	NNFI	CFI	ΔCFI
Configural	3057.28 (1678)	<.001	.063	.060 - .067	.901	.908	-
Weak	3143.71 (1721)	<.001	.063	.060 - .067	.900	.905	.003
Strong	3860.13 (1757)	<.001	.083	.079 - .086	.831	.836	.069

Due to the failure to establish measurement invariance, the model was tested separately in both cultures. The fit indices for the model indicated a good fit to the observed data for the Japanese group: $\chi^2_{(n=200,df=839)} = 1505.69, p < .001$, NNFI = .921, CFI = .927, and RMSEA = .058, 90% CI for RMSEA = (.053; .064). However, the fit indices showed a poor fit to the observed data for the Canadian group: $\chi^2_{(n=200,df=839)} = 1551.59, p < .001$, NNFI = .878, CFI = .887, and RMSEA = .068, 90% CI for RMSEA = (.063; .073). Based on these results, further analyses, SEM, can be conducted only for the Japanese

group when using the EIS item scores. However, the focus of this study is to examine the cultural differences based on the EI scores by considering cultural orientations and the level of sympathy. Therefore, before proceeding to the next analysis using SEM, parceled EIS scores were used to confirm whether the observed data from the two cultures fit in the model (Figure 5). Little et al. (2002) recommended when to use and not to use parceled scores. They claimed models based on parceled data have some advantages compared to item-level data. The models using parceled scores are more parsimonious, have fewer chances for residuals to be correlated or dual loadings to emerge, and reduce sources of sampling errors (Little et al., 2002). Therefore, indices of model fit are anticipated to be more acceptable when parceled scores are used instead of item scores. Considering the psychometric and estimation advantages of parceled scores, the next appropriate step in this study, after failing the model convergence using item scores for the Canadian group, is an examination of model convergence using parceled scores. Facet representative parcels were created for the EIS as these scores are internally consistent and each parcel, unlike domain representative parcels, can reflect a singular dimension of the EIS construct. A balancing technique was used to combine items with higher loadings and smaller loadings in each parcel.

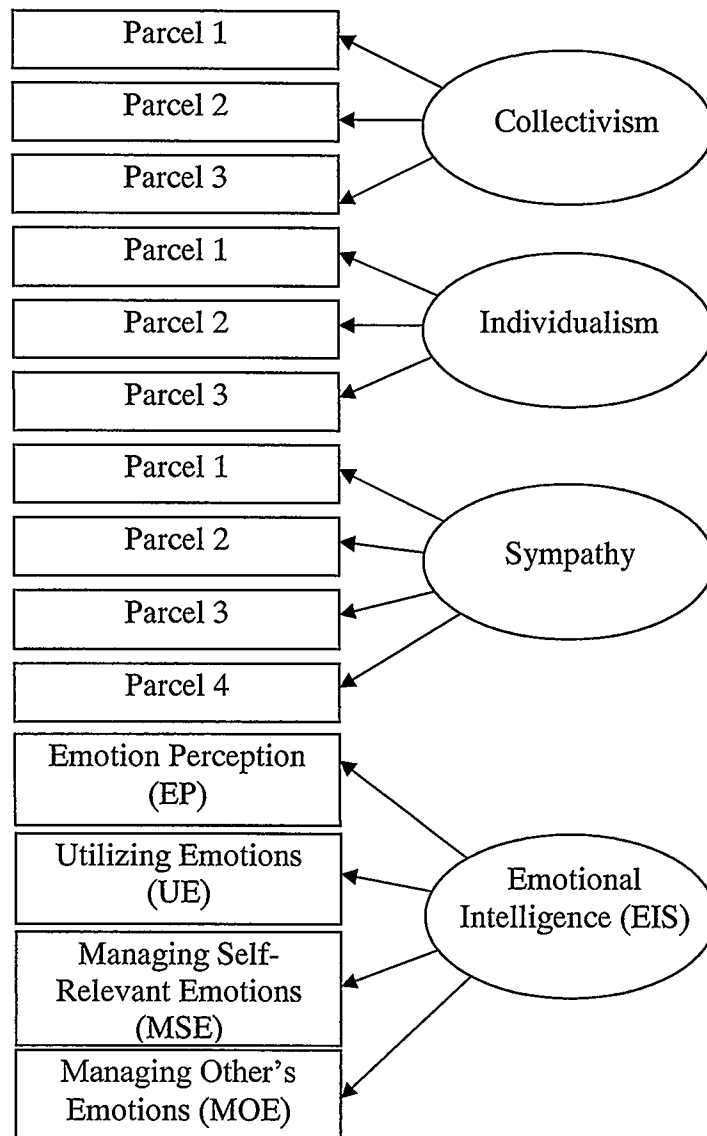


Figure 5. CFA with Four-Factor EIS Constructs (Full Model).

Note: All latent covariances were included in the above model.

Invariance analyses were conducted using the multi-group CFA for the model of the EIS consisting of parceled scores (Figure 5). Although the results of the EIS supported the configural invariance model, the weak invariance model was not supported (Table 15).

Table 15.

Fit Indices for Configural and Weak Invariance Models for the EIS (Parceled Scores)

Invariance Model	$\chi^2(df)$	p	RMSEA	90% CI for RMSEA	NNFI	CFI	ΔCFI
Configural	357.66 (142)	< .001	.084	.072 - .095	.914	.933	-
Weak	399.01 (156)	< .001	.087	.077 - .098	.907	.920	.013

Since measurement invariance was not established, the model using EIS parceled scores was tested separately for both cultures. The indices for the model indicated a good fit to the observed data for both cultures: Canada: $\chi^2_{(n=200,df=71)} = 172.97, p < .001$, NNFI = .905, CFI = .926, and RMSEA = .080, 90% CI for RMSEA = (.064; .096); and Japan: $\chi^2_{(n=200,df=71)} = 184.69, p < .001$, NNFI = .921, CFI = .938, and RMSEA = .087, 90% CI for RMSEA = (.072; .103). Based on these results and that the focus of this study is to conduct a cross-cultural comparison, an indirect model (Figure 6) tested in the SEM was derived from the model using parceled EIS scores (Figure 5). This indirect model for the EIS includes: 1) a correlated path between two cultural constructs, individualism and collectivism (i.e., path e); 2) two direct paths from the two cultural orientation constructs to EI (i.e., path c, and path d); and 3) two indirect paths from the cultural orientation constructs to EI through sympathy (i.e., path a1 to b, and path a2 to b).

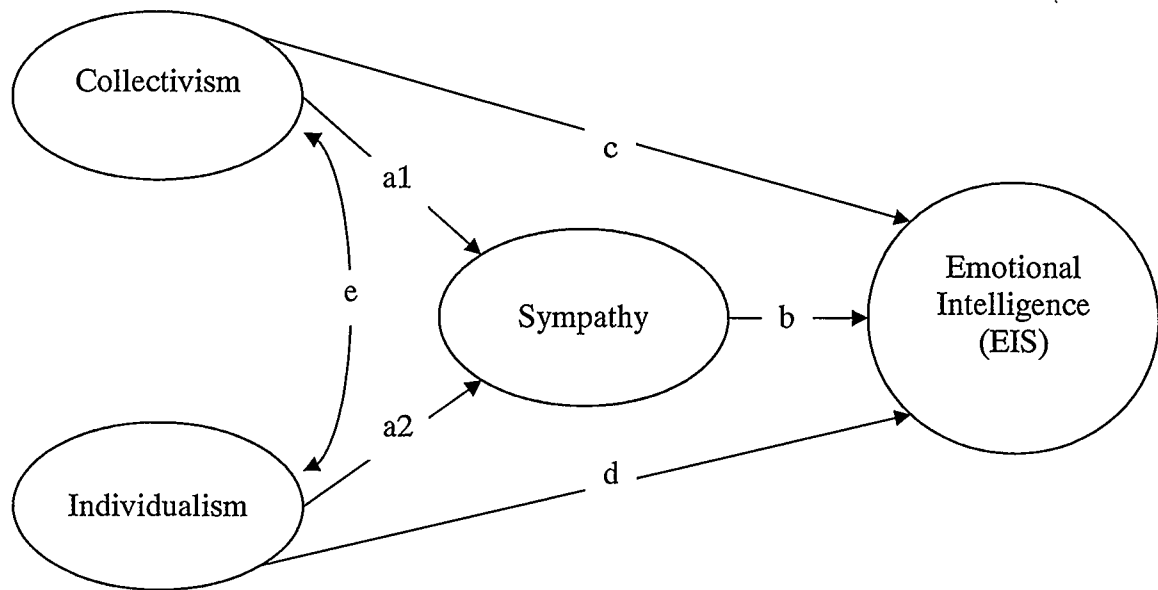


Figure 6. SEM Indirect Model for the EIS.

The indirect effects were calculated using the Monte Carlo method for assessing mediation (Selig & Preacher, 2008). The 95% bootstrapped CI for the indirect effect of collectivism on EI through sympathy were as follows: Canada: 95% CI = (.245; .859); and Japan: 95% CI = (.289; .906). The 95% bootstrapped CI for the indirect effect of individualism on EI through sympathy were as follows: Canada: 95% CI = (.047; .487); and Japan: 95% CI = (-.025; .285).

Table 16 indicates the parameter estimates for each path for both cultural groups. For the Canadian group, the CI for the indirect path from individualism to EI through sympathy indicated significance, which suggests sympathy was mediating the level of EI. The indirect effect from individualism to EI score through sympathy indicates that the higher the Canadian student's individualism score, the higher the sympathy score becomes, which leads to the higher EI score. The direct path from individualism to EI

was also significant. Therefore, although sympathy explains some of the relationship between individualism and EI; there is still a direct connection between the individualism and EI. This direct effect indicates that the higher the Canadian student's individualism score, the higher the EI score becomes. On the other hand, the direct path from collectivism to EI was not significant. The only significant path from collectivism to the EI construct is the indirect path from collectivism to EI through sympathy. This suggests that the higher the level of the Canadian student's collectivism score, the higher the sympathy score, which leads to the higher EI score. Thus, sympathy was completely mediating the level of EI.

Similar to the indirect model for the WLEIS, for the Japanese group, the CI for the indirect path from individualism to EI through sympathy indicated non-significance. Therefore, sympathy was not mediating the level of EI for the Japanese group. The relationship between individualism and EI is explained only by the directional path from individualism to EI; the higher the Japanese student's individualism score, the higher the EI score. The direct path from collectivism to EI was also not significant which was the case for the indirect model for the WLEIS. The significant indirect path from collectivism to EI through sympathy implies that the higher the Japanese student's collectivism score, the higher the sympathy score, which leads to the higher EI score. Thus, the common significant paths for both cultural groups in the EIS indirect model were the direct path from individualism to the EI as well as the indirect path from collectivism to the EI through sympathy.

Table 16.

Parameter Estimates and Standard Errors for Each Path in the EIS Indirect Model

		Canada			Japan		
Path (Paths in Figure 6)		Parameter Estimates	Standard Error	Standardized Parameter Estimates	Parameter Estimates	Standard Error	Standardized Parameter Estimates
Direct Path							
Collectivism → EI	(c)	-.128	.155	-.082	.040	.158	.025
Individualism → EI	(d)	.560**	.147	.357	.632**	.134	.395
Collectivism → Sympathy	(a1)	.599**	.127	.508	.810**	.136	.616
Individualism → Sympathy	(a2)	.283*	.114	.240	.166	.104	.126
Sympathy → EI	(b)	.865**	.183	.650	.700**	.152	.575
Indirect Path							
Collectivism→ Sympathy → EI	(a1 times b)	.518*	-	-	.567*	-	-
Individualism→ Sympathy → EI	(a2 times b)	.245*	-	-	.116	-	-
Correlational Path							
Collectivism and Individualism	(e)	-.147	.093	-.147	.160	.088	.160

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

CAI

The CAI was the third measurement to be tested. The configural, weak, and strong invariance between the two cultural groups were tested using the multi-group CFA for the model of the CAI (Figure 7).

The results of the CAI supported the configural invariance model at the marginally acceptable level (Table 17), which suggests that the relative pattern of factor loadings was equivalent between the Canadian and the Japanese groups. However, the weak invariance model failed to be established. Therefore, the factor loadings were not equivalent between the two cultural groups. Measurement invariance was not established for the CAI.

Table 17.

Fit Indices for Configural and Weak Invariance Models for the CAI (Raw Item Scores)

Invariance Model	$\chi^2(df)$	p	RMSEA	90% CI for RMSEA	NNFI	CFI	ΔCFI
Configural	2246.10 (1288)	< .001	.059	.054 - .063	.894	.903	-
Weak	2382.27 (1326)	< .001	.063	.059 - .067	.878	.885	.018

As the next step, the model using the CAI was tested separately for both cultures.

A maximum-likelihood CFA was conducted to evaluate the goodness of fit of the previously described model (Figure 7). The indices for the model indicated a good fit to the observed data for the Canadian group: $\chi^2_{(n=200, df=644)} = 1113.88$, $p < .001$, NNFI = .909, CFI = .917, and RMSEA = .061, 90% CI for RMSEA = (.055; .067). However, the indices showed a poor fit to the observed data for the Japanese group: $\chi^2_{(n=200, df=644)} =$

1132.22, $p < .001$, NNFI = .869, CFI = .880, and RMSEA = .056, 90% CI for RMSEA = (.050; .063).

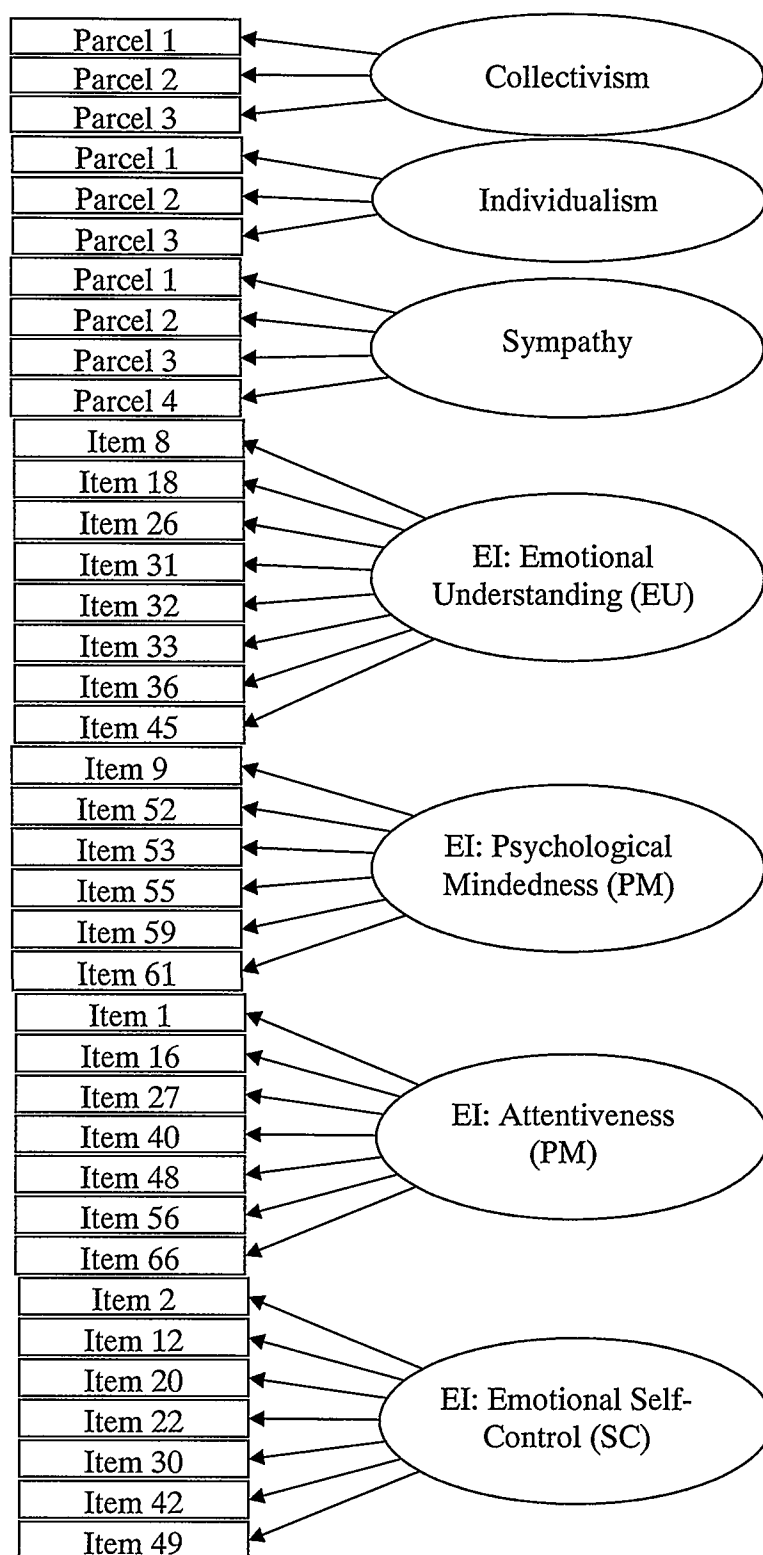


Figure 7. CFA with Four-Factor CAI Constructs (Full Model).

Note: All latent covariances were included in the above model.

Similar to the situation with the previous indirect model for the EIS, based on these results, further analyses can be conducted only for the Canadian group when using the CAI item scores. However, before proceeding to the next analysis, parceled CAI scores were used to confirm whether the observed data from the two cultures fit in the model as Little et al. (2002) recommended. Invariance analyses were conducted using the multi-group CFA for the model of the CAI consisting of parceled scores. The fit indices for the configural model indicated a poor fit to the observed data: $\chi^2_{(n=400, df=142)} = 381.31$, $p < .001$, NNFI = .846, CFI = .880, and RMSEA = .091, 90% CI for RMSEA = (.080; .102). Therefore, measurement invariance was not established. When using CAI item scores, configural invariance was at least established; therefore, in the further analyses, the indirect model for the CAI used the item scores instead of parceled CFI scores. Due to the poor fit for the single group CFA results for the Japanese sample, further analysis was conducted only for the Canadian group.

The next point to clarify in the model was the structure of the CAI. Parker, Wood, Keefer, and Eastabrook (2006) indicated the average score of the four subscale scores (i.e., EU, PM, AT, and SC) serve as an overall indicator of EI; therefore, the model using the second-order EI construct was also tested for the Canadian group. The indices demonstrated a poor fit to the observed data for the Canadian group: $\chi^2_{(n=200, df=655)} = 1186.72$, $p < .001$, NNFI = .892, CFI = .899, and RMSEA = .066, 90% CI for RMSEA = (.060; .072).

The chi-square difference statistic was used to evaluate the change in fit when adding the second order factor. The results of the chi-square difference test was as follows: $\Delta\chi^2(11) = 72.843$, $p < 0.01$. Because the differences in the chi-squared statistics

between the full and restricted models for the Canadian sample is significant and positive, the model with the EI construct consisting of only the four correlated first order factors is describing the observed data significantly better than the model with second-order EI construct. Consequently, the first model using the EI construct with the four correlated first order factors was used in further SEM analysis for the Canadian group.

An indirect model (Figure 8) tested in the SEM for the Canadian group includes the following paths: 1) a correlated path between two cultural constructs, individualism and collectivism (i.e., path e); 2) six correlated paths among four underlying EI factors (i.e., path f1, f2, f3, f4, f5, and f6); 3) eight direct paths from the two cultural orientation constructs to EI subscales (i.e., path c1, c2, c3, c4, d1, d2, d3 and d4); and 4) two paths from the cultural orientation constructs to sympathy (path a1 and a2) to the four paths to the EI subscales (i.e., path b1, b2, b3, and b4).

The results indicated that the model demonstrated a good fit for the observed data for the Canadian group: $\chi^2_{(n=200, df=644)} = 1113.88, p < .001$; NNFI = .909 and CFI = .917, RMSEA = .061, 90% CI for RMSEA = (.055; .067). The Monte Carlo method for assessing mediation (Selig & Preacher, 2008) was used to evaluate the indirect effects for the Canadian group. The 95% bootstrapped CIs for the indirect effect of collectivism on the following four EI subscales through sympathy were as follows: EU: 95% CI= (.090; .436); PM: 95% CI= (.021; .765); AT: 95% CI= (-.047; .225); and SC: 95% CI= (-.001; .292). The 95% bootstrapped CIs for the indirect effect of individualism on the following four EI subscales through sympathy were as follows: EU: 95% CI= (.021; .249); PM: 95% CI= (.041; .440); AT: 95% CI= (-.022; .125); and SC: 95% CI= (-.003; .163). Table 18 presents the parameter estimates for the Canadian group.

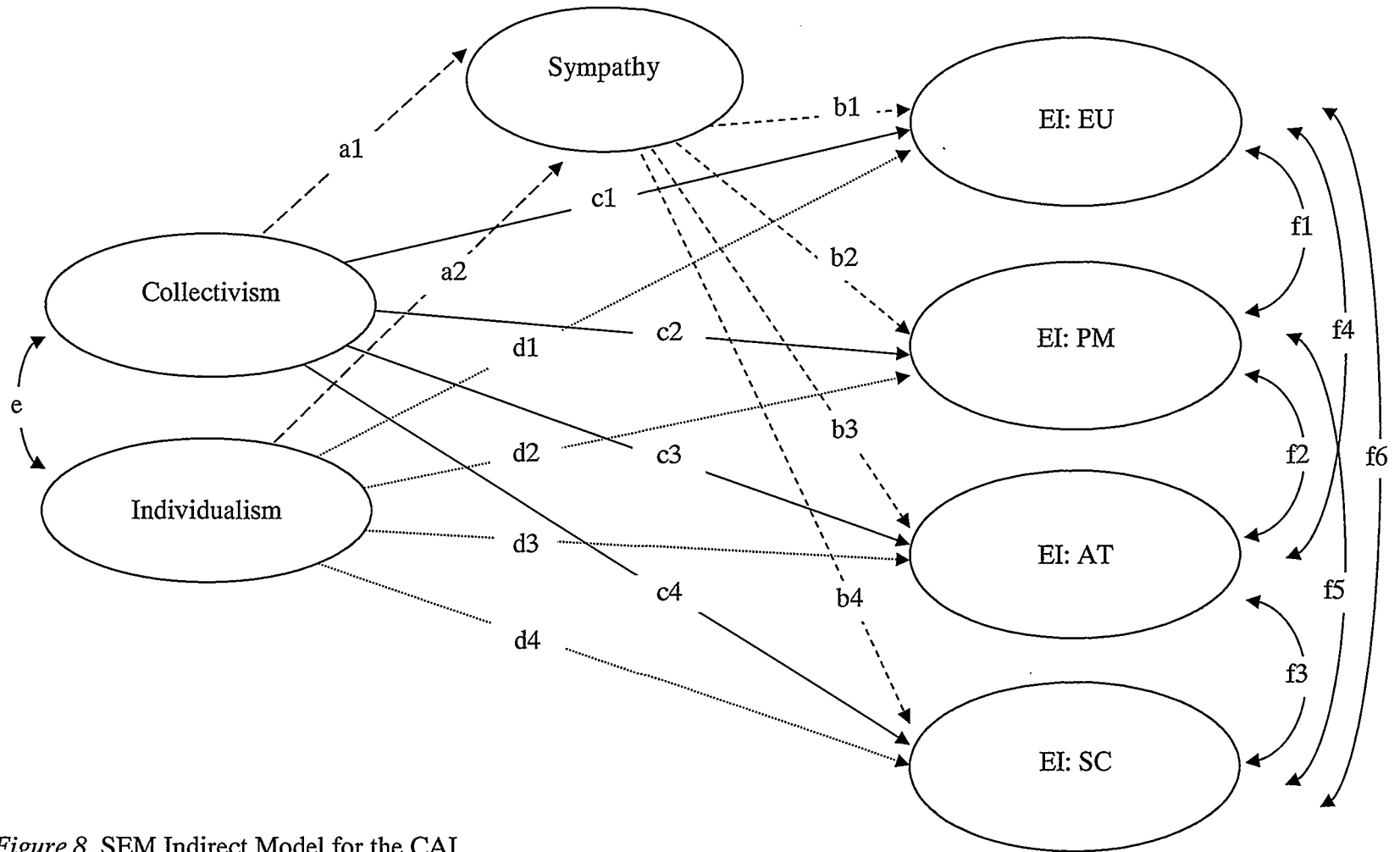


Figure 8. SEM Indirect Model for the CAI.

The CIs for the indirect paths from individualism to the two subscales of the EI (i.e., EU, PM) through sympathy indicated significance, which suggest sympathy was mediating the level of these two subscales. However, one of the two EI subscale, EU, has a significant direct path from individualism as well; the higher the Canadian student's individualism score, the higher the EU score. Therefore, the relationship between individualism and the EU subscale is explained both by the direct and indirect paths. The CIs for the indirect paths from individualism to the other subscales of the EI (i.e., AT, SC) through sympathy showed non-significance. Therefore, only the significant direct path explained the relationship from individualism to the AT subscale. Since the direct path from individualism to SC was not significant, no explanation can be made for the relationship between individualism and SC.

Similar to the paths from individualism, the CIs for the two indirect paths from collectivism to the EI subscales (i.e., EU, PM) indicated significance, which suggest sympathy was mediating the level of these two subscales of EI. These results suggest that the higher the Canadian student's collectivism score, the higher the sympathy score, which leads to the higher scores on the EI: EU and the EI: PM subscales. Among all direct paths, only the path from collectivism to EU was significant, which indicate that the higher the Canadian student's collectivism score, the lower the score on the EI: EU subscale. Neither direct nor indirect paths explain the student's scores from collectivism to the EI: AT and the EI: SC subscales.

Table 18.

Parameter Estimates and Standard Errors for Each Path in the CAI Indirect Model

		Canada		
Path (Paths in Figure 8)		Parameter Estimates	Standard Error	Standardized Parameter Estimates
Direct Path				
Collectivism → EI:EU	(c1)	-.355**	.132	-.302
Collectivism → EI:PM	(c2)	-.281	.161	-.215
Collectivism → EI:AT	(c3)	-.130	.122	-.120
Collectivism → EI:SC	(c4)	-.069	.125	-.067
Individualism → EI:EU	(d1)	.327**	.110	.278
Individualism → EI:PM	(d2)	.151	.128	.116
Individualism → EI:AT	(d3)	.335**	.110	.311
Individualism → EI:SC	(d4)	.007	.108	.007
Collectivism → Sympathy	(a1)	.606**	.129	.511
Individualism → Sympathy	(a2)	.290*	.117	.244
Sympathy → EI:EU	(b1)	.401**	.116	.404
Sympathy → EI:PM	(b2)	.750**	.169	.679
Sympathy → EI:AT	(b3)	.133	.107	.146
Sympathy → EI:SC	(b4)	.216	.112	.249
Indirect Path				
Collectivism → Sympathy → EI:EU	(a1 times b1)	.243*	-	-
Collectivism → Sympathy → EI:PM	(a1 times b2)	.454*	-	-
Collectivism → Sympathy → EI:AT	(a1 times b3)	.081	-	-
Collectivism → Sympathy → EI:SC	(a1 times b4)	.131	-	-
Individualism → Sympathy → EI:EU	(a2 times b1)	.116*	-	-
Individualism → Sympathy → EI:PM	(a2 times b2)	.217*	-	-
Individualism → Sympathy → EI:AT	(a2 times b3)	.039	-	-
Individualism → Sympathy → EI: SC	(a2 times b4)	.063	-	-
Correlational Path				
Collectivism and Individualism	(e)	-.136	.094	-.136
EI: EU and EI:PM	(f1)	.313**	.105	.489
EI:PM and EI:AT	(f2)	.157	.112	.269
EI: AT and EI: SC	(f3)	.809**	.054	.774
EI: EU and EI: AT	(f4)	.565**	.070	.629
EI: PM and EI: SC	(f5)	.089	.117	.210
EI: EU and EI: SC	(f6)	.506**	.079	.508

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

The results for the research question about the measurement invariance of the EI measures (Question 1, page 4) indicated that none of the three EI measurements were able to establish measurement invariance across two cultural groups. Further analyses indicated that the WLEIS showed better applicability to both the Canadian and the Japanese university groups than the other two measures. The EIS was usable for both cultural groups when using parceled scores; however, when using item scores, it was usable only for the Japanese sample. The CAI was only usable for the Canadian sample.

As a result of incorporating the cultural dimensions and sympathy in relation to the EI construct (Question 2, page 4), direct and indirect effect on EI showed somewhat consistent patterns across measurements and within cultural groups (Question 3, page 4). Detailed examination of the similarities and differences of the patterns will be provided in Chapter 5, discussion section, after examining the predictive validity evidence of EI with life satisfaction.

Predictive Validity Evidence with Life Satisfaction

EI has been shown to be related to life satisfaction. Before examining the predictive validity of the EI measures using SEM, a series of CFA were performed to confirm the factor structure of the models for both the Canadian and Japanese university student data. The first model tested with CFA included the following correlated two constructs: the SWLS and the EI. The first EI measure tested was the WLEIS, followed by the EIS, and the CAI.

The SWLS construct consists of the five items (i.e., Y1, Y2, Y3, Y4, and Y5). The same subscale scores for the EI measures (WLEIS: SEA, OEA, UOE, and ROE; EIS: EP, UE, MSE, and MOE; CAI: EU, PM, AT, and SC) that had been used in the CFA to

create the indirect models in the previous analyses were used in this section at first. Then, subsequent model changes were conducted using parceled scores, which will be described in this section.

WLEIS

The first model to examine predictive validity consisted of the SWLS item scores and the WLEIS items to create subscale scores. The scores used for the WLEIS was the same with the WLEIS model used in the indirect effects model reported previously. The results of the multi-group CFA did not establish measurement invariance; therefore, single group CFA was further conducted to test this model using the WLEIS item scores. Although both cultural groups supported the four correlated EI factors, when created, the model with the global EI factor was not supported as it was supported in the indirect effects model.

Since it is still believed to be theoretically reasonable that a global EI factor ties all four subscales of the WLEIS together, a final series of models were further tested based on previously published work by Fukuda et al. (2011). In that study, the items of the four subscale factors were averaged at the manifest level to create four scale-score-like parcels, which were all used to indicate a single EI factor. This same parceling scheme was employed again here, in the context of the model currently under investigation.

The results showed that the configural invariance model was supported, which indicated that the relative pattern of factor loadings is equivalent between the Canadian and the Japanese groups. However, the weak invariance model was not supported

indicating that the factor loadings between the groups are not equivalent. Thus, measurement invariance was not established (Table 19).

Table 19.

Fit Indices for Configural and Weak Invariance Models for the WLEIS and the SWLS

Invariance Model	$\chi^2(df)$	p	RMSEA	90% CI for RMSEA	NNFI	CFI	ΔCFI
Configural	131.10 (52)	< .001	.085	.067 -.104	.942	.958	
Weak	171.44 (61)	< .001	.097	.080 -.114	.925	.936	.022

Therefore, the model was tested separately in both cultures. The indices for the model indicated a good fit to the observed data for both cultural groups: Canada: $\chi^2_{(n=200, df=26)} = 64.88, p < .001$, NNFI = .949, CFI = .963, and RMSEA = .084, 90% CI for RMSEA = (.057; .011), and Japan: $\chi^2_{(n=200, df=26)} = 66.23, p < .001$, NNFI = .933, CFI = .951, and RMSEA = .087, 90% CI for RMSEA = (.061; .011). Hence, this model was used in the SEM to examine the relationship between the latent variables and their indicators. The results of the SEM indicated that the magnitude of the standardized direct effect of EI, measured with the WLEIS, on satisfaction with life was medium for both cultural groups: Canada = .372 (Figure 9), and Japan = .474 (Figure 10). These results indicate that the higher EI was related to higher self-reported satisfaction with life for both Canadian and Japanese university student samples.

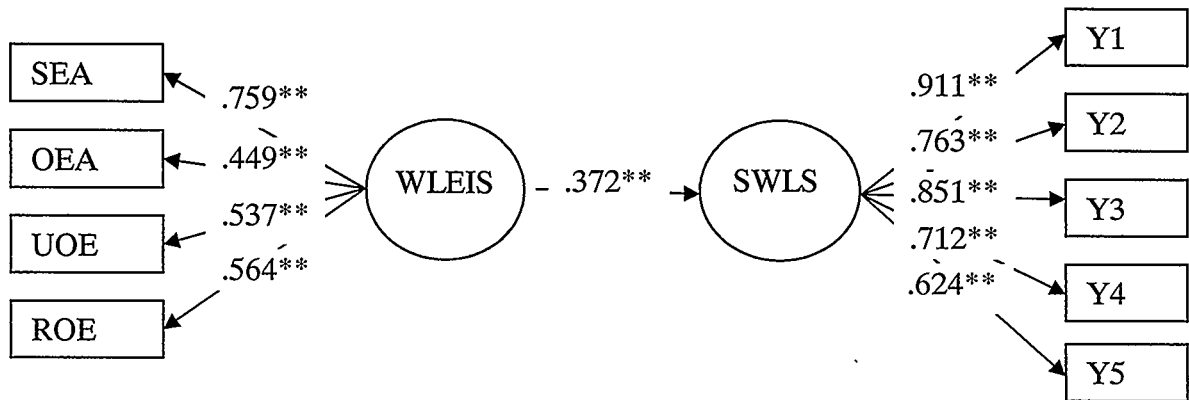


Figure 9. SEM for WLEIS and life satisfaction for the Canadian group.

** $p < .01$.

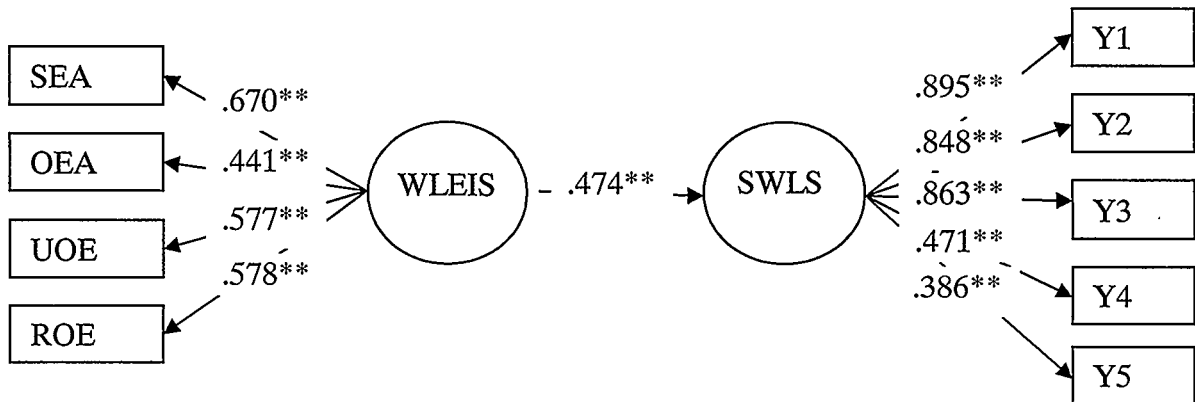


Figure 10. SEM for WLEIS and life satisfaction for the Japanese group.

** $p < .01$.

EIS

Parceled scores generally fit better to the model, and the item level functions were not of major interest in the examination of the predictive validity; therefore, the parceled EIS scores were also used in the series of CFA analyses. The multi-group CFA demonstrated that this model failed to establish measurement invariance (Table 20).

Table 20.

Fit Indices for Configural and Weak Invariance Models for the EIS and the SWLS

Invariance Model	$\chi^2(df)$	p	RMSEA	90% CI for RMSEA	NNFI	CFI	ΔCFI
Configural	117.18 (52)	<.001	.079	.060 - .098	.959	.970	
Weak	163.84 (61)	<.001	.093	.076 - .110	.943	.952	.018

However, the results of single group CFA showed good fit to the observed data for both cultural groups: Canada: $\chi^2_{(n=200, df=26)} = 56.85, p < .001$, NNFI = .962, CFI = .973, and RMSEA = .078, 90% CI for RMSEA = (.051; .011), and Japan: $\chi^2_{(n=200, df=26)} = 60.34, p < .001$, NNFI = .955, CFI = .967, and RMSEA = .080, 90% CI for RMSEA = (.053; .011). Consequently, this model was used in the SEM to examine the relationship between the latent variables, EIS and SWLS, and their indicators, EIS subscales and SWLS items. The results of the SEM indicated that the EIS had a medium magnitude of direct effect on satisfaction with life for the both cultural groups: Canada = .351 (Figure 11), and Japan = .405 (Figure 12). These results replicated the findings of the WLEIS; the higher EI was related to higher self-reported satisfaction with life for both Canadian and Japanese university student samples.

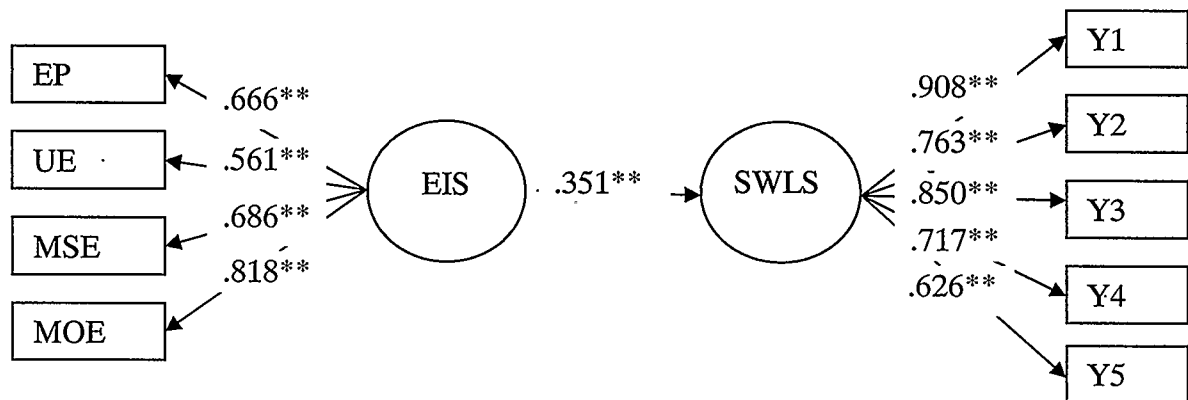


Figure 11. SEM for EIS and life satisfaction for the Canadian group.

** $p < .01$.

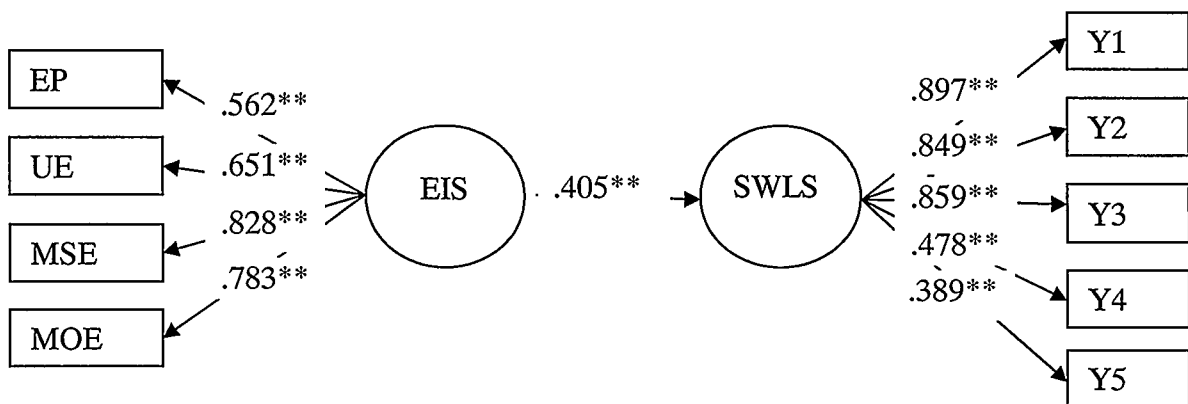


Figure 12. SEM for EIS and life satisfaction for the Japanese group.

** $p < .01$.

CAI

The results of multi-group CFA indicated that the model using the parceled CAI scores failed to establish measurement invariance (Table 21).

Table 21.

Fit Indices for Configural and Weak Invariance Models for the CAI and the SWLS

Invariance Model	$\chi^2(df)$	p	RMSEA	90% CI for RMSEA	NNFI	CFI	Δ CFI
Configural	112.75 (52)	< .001	.077	.058 - .096	.949	.963	
Weak	158.96 (61)	< .001	.092	.075 - .109	.928	.939	.024

Therefore, single group CFA were conducted for both cultural groups, and the results showed good fit to the observed data for both groups: Canada: $\chi^2_{(n=200, df=26)} = 61.95, p < .001$, NNFI = .950, CFI = .964, and RMSEA = .083, 90% CI for RMSEA = (.056; .011), and Japan: $\chi^2_{(n=200, df=26)} = 50.80, p = .003$, NNFI = .948, CFI = .963, and RMSEA = .071, 90% CI for RMSEA = (.042; .099). This model, therefore, was used in the SEM to examine the predictive validity of CAI on the level of life satisfaction. The results of the SEM indicated that the CAI had a small effect on satisfaction with life for the Canadian group: = .261 (Figure 13) while it had a medium effect for the Japanese group: = .322 (Figure 14). Although there were differences in the magnitude of effect of the CAI on satisfaction with life, the findings indicated that the higher EI was related to higher self-reported satisfaction with life for both Canadian and Japanese university student samples. However, the poor factor loading for the PM subscale for the Japanese group indicates the existence of an uninterpretable variable in the model.

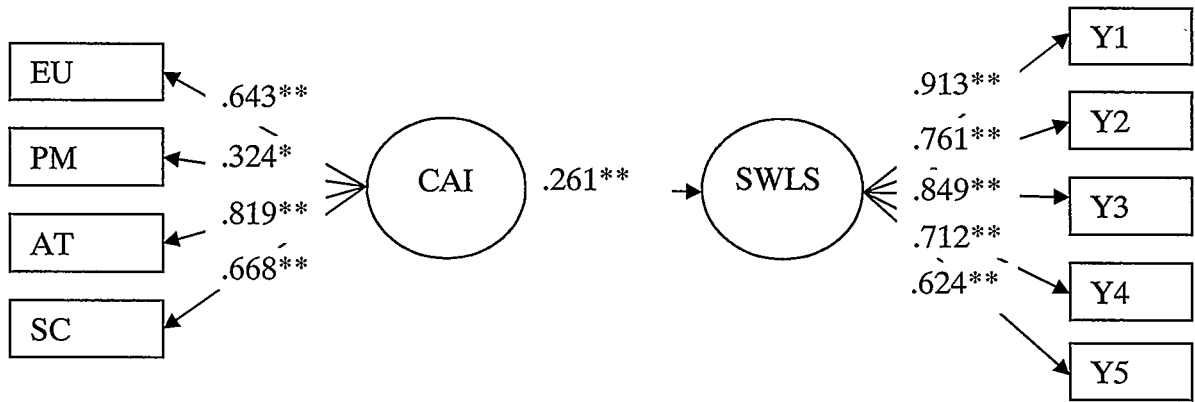


Figure 13. SEM for CAI and life satisfaction for the Canadian group.

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

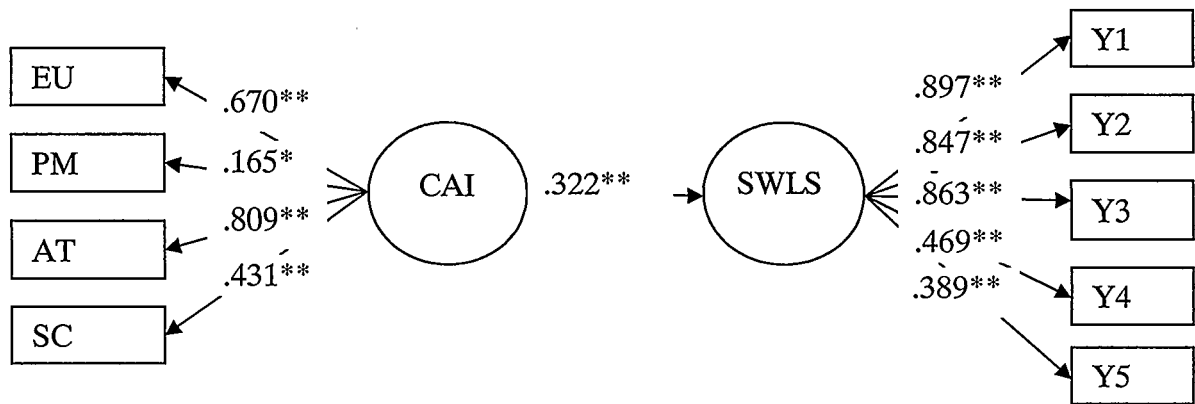


Figure 14. SEM for CAI and life satisfaction for the Japanese group.

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

Convergent and Discriminant Validity Evidence of EI with Personality Factors

Personality factors were known to relate to EI constructs; therefore, examining the convergent and discriminant validity evidence using the data on personality factors was an additional aim in this study. Before examining the validity evidence, a series of CFA were performed to confirm the factor structure of the personality measurement, MM. Parceled scores of the MM subscales (i.e., extraversion, agreeableness, conscientiousness, neuroticism, openness to change) were used in the CFA. The results of the multi-group CFA indicated that measurement invariance of the configural model was not established (Table 22).

Table 22.

Fit Indices for Configural and Weak Invariance Models for the MM

Invariance Model	$\chi^2(df)$	p	RMSEA	90% CI for RMSEA	NNFI	CFI	Δ CFI
Configural	21.44 (10)	.0182	.071	.023 - .116	.804	.902	
Weak	38.32 (15)	.0023	.082	.047 - .118	.739	.805	.098

In addition, the fit indices for the single group CFA also showed poor fit to the observed data for both cultural groups: Canada: $\chi^2_{(n=200, df=5)} = 10.38, p = .065$, NNFI = .742, CFI = .871, and RMSEA = .070, 90% CI for RMSEA = (.0; .134); and Japan: $\chi^2_{(n=200, df=5)} = 11.06, p = .050$, NNFI = .841, CFI = .920, and RMSEA = .073, 90% CI for RMSEA = (.0; .136).

As a result, the further analyses on convergent and discriminant validity were not conducted since these results indicate that the personality measure, the modified MM, was not measuring what it was intended to measure in this study. The potential causes of these results will be discussed in the following chapter.

CHAPTER FIVE

DISCUSSION

The purpose of this study was to explore cultural differences in EI scores between Canadian and Japanese groups when further considering the cultural orientations (i.e., individualism and collectivism) and the level of sympathy. Three EI measurements were used in this study: the Wong and Law Emotional Intelligence Scale (WLEIS), the Schutte Emotional Intelligence Scale (EIS), and the College Achievement Inventory (CAI). These measurements were chosen because our interest focuses on whether the measurements developed in Western (EIS, CAI) cultures function well in the Eastern culture, and whether the measurements developed in Eastern (WLEIS) cultures also function well in the Western culture. In order to conduct direct score comparisons, measurement invariance was tested first. This study also examined the predictive validity of EI for life satisfaction. Therefore, in this chapter, the following three discussions are presented: (1) measurement invariance; (2) impact of cultural orientations and sympathy on EI; (3) predictive validity evidence of EI. The topic of establishing measurement invariance is among the most needed in cross-cultural studies. Moreover, none of the EI studies have examined the cultural orientation factors and culturally unique factors in EI research. Therefore, the findings of these two areas will potentially advance EI cross-cultural research. Although predictive validity evidence of EI has been reported in Western cultures, replicating the results in this study and adding the findings for the Eastern culture contribute to the development of EI as an universal construct.

Measurement Invariance

In order to directly compare the scores across groups, strong invariance needed to be established; however, the findings showed that this type of measurement invariance was not established for any of the models using three different EI measurements. Therefore, score comparisons between the Canadian and Japanese groups were not conducted in this study. However, the three measurements demonstrated different levels of measurement invariance.

The data showed configural and weak invariance when using item scores; the model using the WLEIS demonstrated a better fit to both cultural groups than the EIS and the CAI. The establishment of configural invariance indicated that the equivalent factor structure was held across groups. The next level invariance, weak invariance, demonstrated that factor loadings were equivalent across groups. Because the model using the WLEIS was not able to demonstrate the invariance when more stringent constraints were in place (i.e., factor loadings and intercepts of all items were equivalent), strong invariance was not established (see Table 9 in Chapter 4, page 65). Consequently, further SEM analyses were conducted using WLEIS' item scores based on the results showing the model fit using single group CFA. The SEM results will be discussed in the section on the impact of cultural orientations and sympathy on EI.

Like the WLEIS, the model using the EIS also demonstrated configural and weak invariance when using item scores (see Table 14 in Chapter 4, page 77). However, the difference arose when the separate group CFA showed a poor fit to the Canadian group's data. This made it impossible to proceed to further SEM analysis for the Canadian group. Comparing cultural differences was the primary focus of this study; therefore, the

parceled EIS scores were used in the model. The use of the parceled EIS scores improved the model's fit to the Canadian data. Therefore, further SEM analyses were conducted using the EIS parceled scores in the indirect model, which will be discussed later.

Unlike the other two EI measurements, the CAI showed a marginally acceptable level of configural invariance when using the item scores in the model (see Table 17 in Chapter 4, page 84). When using the parceled scores, the model generally fit better to the observed data; however, the configural invariance was not established when using the CAI parceled scores, which was an unexpected result. The results of a single group CFA using the CAI item scores indicated that the model showed good fit only for the Canadian group. Therefore, further SEM analysis was conducted only for the Canadian group. The results presented in this study did not provide supporting evidence for the factor structure of the CAI for the Japanese group. Examination of the psychometric properties of the subscales of the CAI also showed that three of the four EI subscales had unacceptable internal consistency (see Table 3 in Chapter 4, page 59).

One of the main reasons for the CAI not working well with the Japanese sample may be attributed to the poor reliability evidence of the EI subscales of the CAI. The PM subscale showed the lowest internal consistency reliability among the four subscales. Taking into consideration the collectivistic orientation of the Japanese society (Matsumoto et al., 2008; Yamaguchi, 1994; Yamaguchi et al., 1995) and the definition of the PM subscale, using feelings to guide reasoning and behaviours may not have matched with Japan's societal expectations. The PM subscale reflects more of the unique attributes of the individual which guide his or her reasoning and behaviours (i.e., independent view of self); however, people in collectivistic cultures tend to employ an interdependent view

of self, which values harmony in interpersonal relationships (Markus & Kitayama, 1991). In addition, as a country scoring higher than Canada on the Hofstede's Power Distance cultural dimension, and as its language's honorific system makes the value evident, Japan would emphasize age and rank of the members in the social hierarchy. In this case, the Japanese may value fulfilling social obligations according to where they stand instead of using individual attributes (i.e., feelings), which can be the primary factors to guide their reasoning and behaviours.

The problem with the PM subscale was also described for Chinese university students (Li, 2010). When Li (2010) conducted exploratory factor analyses, consistently fewer numbers of items were extracted to define the PM subscale for two Chinese samples from Beijing. Furthermore, no items were extracted for a Chinese sample in Canada. She explained these results based on the assumption that the construct measured by the PM subscale does not have the same meanings in Chinese and Canadian societies. Thus, the PM subscale seems to be an inappropriate representation of the EI dimension, especially in cross-cultural studies.

In conclusion, measurement invariance analyses demonstrated that the scores in the indirect model using three different EI measurements cannot be compared directly. Both WLEIS and EIS can be used in the Canadian and the Japanese university populations; however, they need to be analyzed separately in each cultural group. The results also indicated that the item scores of the WLEIS can be used in the model, which decreases the chance of identifying misspecified models. However, the EIS can only be analyzed when parceled scores are used in the model. The CAI can be used only for the Canadian population. No evidence was obtained that the CAI is a reliable and valid EI

measure for the Japanese university sample in this study. Therefore, the main analysis of this study, described in the next section, was conducted for the WLEIS and the EIS data for both cultural groups as well as the CAI data for the Canadian group.

Impact of Cultural Orientations and Sympathy on EI

In this study, a model was created to examine the indirect effects of sympathy on the relationships between the two cultural orientations and EI. Because three EI measurements were examined, the indirect effects model was run three times, with a different measure of EI substituted in each run. An interesting finding in this study was that the Japanese group demonstrated consistent patterns for the impact of cultural orientations and sympathy on EI, even when two different EI measurements (i.e., the WLEIS and the EIS) were used in the model and regardless of whether the use of subscales (i.e., SEA, OEA, UOE, and ROE) or the general EI (i.e., EIS), was considered. On the other hand, the Canadian group showed inconsistent patterns, which will be examined after the discussion of the Japanese results. Further descriptions of the Japanese and Canadian patterns are provided by considering Hofstede's cultural dimensions and Markus and Kitayama's views of self, respectively.

The patterns for the Japanese group were straightforward: generally, the relationship between EI and collectivism is explained through sympathy; a complete indirect effect exists. On the other hand, the relationship between EI and individualism can be explained only by direct paths. Considering the lower score of the Hofstede's cultural dimension of Individualism (ID) as well as the likelihood of employing the interdependent view of self as described by Markus and Kitayama (1991), prosocial behaviours are somewhat culturally expected in Japanese culture. This expectation was

met by the individuals who scored high on collectivism, and therefore demonstrate sympathy-related behaviours and are likely to score high on the EI measurements.

However, researchers should not prematurely conclude that individuals who do not demonstrate sympathy-related behaviours are less emotionally intelligent although not exhibiting prosocial behaviours after sensing others' emotions is somewhat against cultural expectations. The results indicated that students who scored high on individualism show no indirect effect of sympathy. Manifestation of sympathy-related behaviours and emotion is not related to the level of EI for the students who scored high on individualism. This behavioural manifestation difference appears to reflect more of the independent view of self: self's inner attributes (e.g., desire, preference) are the most significant factors for regulating behaviours, unlike an interdependent view of self. With an interdependent view, self-knowledge guides behaviours of individuals who consider the importance of keeping harmonious relations with others in specific contexts. Thus, it became evident that the Japanese culture itself (i.e., collectivistic culture) does not enforce the sympathy-related behaviours and emotions for all Japanese. The lack of enforcement by the culture does not impact the demonstration of high EI scores. It is a Japanese university student's cultural orientation that predicts whether the individual shows sympathy-related behaviours and emotions.

Another interesting point for the Japanese group is that all significant indirect paths from collectivism to the WLEIS's EI subscales had corresponding significant direct paths from individualism to the EI subscales with the exception of the ROE subscale. This suggests that individualism does not predict the level of EI in the regulation of emotion for the Japanese group. Example items of the ROE subscale are, "I am able to

control my temper and handle difficulties rationally,” and “I am quite capable of controlling my own emotions.” Considering the individualistic and collectivistic dimension in emotional expressions, individualists would be expected to express their personal emotions more freely than collectivists (Ting-Toomey, 1999). Therefore, at first glance, Japanese university students who scored high on individualism can be expected to be good at regulating their emotions due to frequent emotional expressions. However, the lack of a significant result may suggest that these students may not be as pressured as the students who scored high on collectivism to maintain harmony in relationships. Social pressures do not seem to restrain the students with high individualism scores from expressing their emotions in a regulated manner. Thus, these findings identify the need to consider the individual’s cultural orientation for the Japanese students when discussing their EI.

The Canadian group’s patterns were more complex than the Japanese group: for one of the four domains (i.e., SEA) as well as a general EI factor, both direct and indirect paths can explain the relationship between EI and individualism. Therefore, the partial indirect effect of sympathy exists. Canadian students who scored high on individualism show sympathy-related behaviours and emotions, which leads them to score high on the EI measurements. Moreover, some Canadian students can score high on the EI measurements even without showing sympathy-related emotions and behaviours. It appears to be up to the individual to decide whether or not to show sympathy-related behaviours. This decision is not related to the individual’s EI score. In addition, it may be expected that collectivism should have an indirect effect of sympathy when discussing the path to the EI domains; however, only a direct path can explain the relationship

between collectivism and the ROE domain, which indicates that Canadian students who score high on collectivism can score high on the ROE domain without showing sympathy-related emotions and behaviours.

A possible explanation for these results may relate to Canada's welcoming and open atmosphere to accepting a variety of opinions and behaviours. This reflects Canada's low score on the Uncertainty Avoidance of the Hofstede's cultural dimension. Furthermore, as a country with a high score on the ID dimension, it is assumed that societal pressure to maintain harmonious relationships with others is not as strong as that of a country such as Japan with a lower score of ID dimension and that the value of respecting people's privacy may be prioritized in a situation in which some people do not demonstrate sympathy-related behaviours. Thus, the results for Canadian students may not be related to an individual's cultural orientation.

Other findings for the Canadian group require discussions at the subscale levels of the EI measures. A non-significant path exists in the model of the WLEIS for the Canadian group: neither a direct nor an indirect path explained the relationship between collectivism and UOE. This implies that students who scored high on collectivism do not demonstrate any relationship to an EI score in the utilizing emotion (i.e., UOE) domain. Items on the UOE subscale include, "I always set goals for myself and then try my best to achieve them," "I am a self-motivated person," "I always tell myself I am a competent person," and "I would always encourage myself to try my best." The contents of these items carry a connotation of intrinsic motivation to improve self attributes or abilities. The ID dimension that describes the focus of individualists is to take care of themselves while that of collectivists is to prioritize their group. The non-significant results from

collectivism to UOE for both direct and indirect paths and the significant result from individualism to UOE for the Canadian group appears to match the items which include “self attributes” and “self improvement.” The question that arises here is: Why was the indirect path from collectivism to the UOE through sympathy for the Japanese group students still significant?

The answer to this question may be explained by the socialization aspect of intrinsic motivation as well as differences between self-enhancement and self-criticism tendencies in the two countries. Japan is a collectivistic country, and as its high score on the UA dimension indicates, the society regularly enforces rules often from the preschool level (e.g., wearing a uniform is enforced). In a culture that emphasizes uniformity compared to a Western culture that values individual uniqueness (Markus & Kitayama, 1991), the number of opportunities for individuals to compare themselves to similar others will increase in the Japanese culture. The frequent social comparison with similar others with a combination of the self-criticism tendency can result in the increase of upward social comparison and raise intrinsic motivation to perform better and improve abilities over others. Therefore, the Japanese culture places value on individuals who make efforts to improve themselves. This might have led to the significant path from collectivism to the UOE subscale, since those items focus on intrinsic motivation and self-affirmation. Some may argue that individualism also rewards social striving and upward comparison to become better than others, leading to the same outcomes. However, the decision to strive to improve is still an individual decision in an individualistic country while both personal decision and societal pressures encourage people in a collectivistic country to improve themselves. Therefore, collectivists’ pressures to

improve themselves and perform better can be expected to be larger than those of individualists. This leaves the question of whether these items are necessarily reflecting the construct of EI.

When comparing the UOE items to the similar construct's items in a different scale, the Utilizing Emotions (UE) subscale in the EIS, the difference of nuance in similar subscales becomes evident. The UE items include "Some of the major events of my life have led me to re-evaluate what is important and not important," "When my mood changes, I see new possibilities," "Emotions are one of the things that make my life worth living," "When I am in a positive mood, solving problems is easy for me," "When I am in a positive mood, I am able to come up with new ideas," and "When I feel a change in emotions, I tend to come up with the new ideas." These items appear to be independent from the nuance of motivation and self-affirmation because the UE items simply ask how individuals typically respond to certain situations and ideas; the contents of the UE items are more neutral and objective compared to the UOE items. As previously mentioned, the UOE items seem to reflect specific values of competency and motivation; therefore, this may increase the chance of culturally biased responses due to frequently encouraged behaviours and a response bias due to social desirability effects, particularly in Japanese individuals.

The individual items may require further examination. For instance, even though the factor structure of the Japanese version of the WLEIS was supported (Fukuda et al., 2011), an item on the UOE showed lower than the limit of interpretable factor loadings (i.e., $<.32$; Comrey & Lee, 1992). Further investigation is necessary to conclude whether the items on the UOE truly reflect the EI ability or whether some of them are ineffective

items in the scale. Research using an item response theory (IRT) approach would help clarify such item functioning questions.

Another interesting point about the WLEIS for the Canadian group at the subscale level is that students who scored high on either collectivism or individualism showed a consistent significant direct path to the ROE subscale. On the other hand, in the Japanese group, a non-significant path from individualism to ROE existed. Generally, individualists express their emotions more freely than collectivists: therefore, the Japanese students who score high on individualism did not receive as much pressure as those who scored high on collectivism, which might have led to the non-significant path between individualism and ROE domain. Emotion regulation ability seems to be irrelevant to the EI construct for students who scored high on individualism in Japan. However, in the Canadian university student sample, students who scored high on either collectivism or individualism demonstrated the relationship between cultural orientations and ROE. This may suggest the need to regulate emotions is relevant to EI and equally valued in collectivism and individualism in Canada where freer emotional expression is encouraged and accepted.

The results of the CAI for the Canadian group also added some new findings. Students' scores on the EU and the PM subscales were mediated by sympathy regardless of their cultural orientations. Furthermore, both cultural orientations explained the relationship to the EU subscale by the direct paths. A confusing finding here is that the direct path from collectivism to the EU subscale indicates a negative parameter estimate, while the indirect path from collectivism to the EU subscale through sympathy demonstrated a positive parameter estimate. This appears to reflect a view that Canadian

students who scored high on collectivism and who demonstrated a likelihood to show sympathy-related emotions and behaviours attain a high score on the EU subscale; however, those students who do not demonstrate sympathy-related emotions and behaviours tend to score lower on the EU subscale. This pattern was not replicated for the students who scored high on individualism: the higher the students' individualism score, the higher their score on the EU subscale with and without an indirect effect of sympathy.

Although the EU subscale is labelled as Emotional Understanding for the CAI, the content of the EU items clearly shows the test developer's intention to measure self-emotion understanding. The items on the EU subscale include "I am often confused about what emotion I am feeling," "When I am upset, I don't know if I am sad, frightened, or angry," "I have feelings that I can't quite identify." These items are similar to those on the SEA subscale, measuring the self-emotion appraisal, in the WLEIS. Because the WLEIS results show no significant direct path to the SEA, and the CAI shows significant results but indicate opposite interpretations for indirect and direct paths to the EU subscale, the overall interpretations for the EU subscale of the CAI were confusing. The results could be interpreted by saying that students who scored high on collectivism and who tend to exhibit lower levels of sympathy-related emotions and behaviours are more likely to have little insight into their own emotions or that they misinterpret them, whereas those who tend to demonstrate higher levels of such emotions and behaviours are less likely to misunderstand self-emotions.

The students who scored high on individualism demonstrate a path that indicates the higher their score on individualism, the higher their AT subscale becomes. However, no significant relationship was found between collectivism and the AT subscale. The

items on the AT subscale include, “I have trouble keeping my attention focused when working,” “I am forgetful in my daily activities,” “I have trouble listening to what other people are saying,” and “I make careless mistakes or have trouble paying close attention to detail.” The significant path from individualism to the AT subscale may reflect the need for the students who scored high on individualism to gather information so that they can judge the situations and manage their behaviours according to their understanding of the situations. Furthermore, the significant path may also reflect these students’ awareness that an observer evaluates their behaviours as their inner attributes.

Consequently, those who scored high on individualism may be more careful about purposefully managing emotions and showing their adaption to the situations. On the other hand, a non-significant path from collectivism to the AT subscale in the Canadian cultural context suggests that students who scored high on collectivism may not be as concerned about gathering information about others and managing their impressions on others as strongly as those who score high on individualism. The collectivistic Canadian students’ concern may be more about maintaining harmonious relationships; their knowledge about the relationships with others will help guide their behaviours.

Moreover, no path to the SC subscale was significant, which suggests that SC was not impacted by the cultural orientations or sympathy. Sample items of this subscale are: “I talk too much,” “I have trouble doing leisure activities quietly,” “I have trouble waiting in line or taking turns with others,” “I fidget (with my hands or feet) or squirm in my seat.” These items seem to reflect behavioural impulsivity and are irrelevant to cultural orientations; therefore, non-significant results for the relationship between cultural orientations and self-control seem to have an easily acceptable explanation.

In conclusion, the findings of this study provided useful points to consider when discussing EI ability within and across cultures. As demonstrated in the Japanese university student sample, an individual's cultural orientation seems to clearly impact the paths to the EI within the same culture. Moreover, considering both Japanese and Canadian groups' patterns from cultural orientations to the EI, it is evident that two cultures show substantially different paths to the general EI and the EI subscales. Consequently, researchers need to be aware that the manifestations of EI related behaviours are likely to differ across cultures, which implies that emotionally intelligent behaviours in Canada may not be considered as emotionally intelligent in Japan, and vice versa. Furthermore, emotionally intelligent behaviours for the students who score high on collectivism may not be regarded as emotionally intelligent for those who score high on individualism in the same culture.

Predictive Validity Evidence of EI

Another contribution of this study is the demonstration of the predictive validity evidence of the EI scales with life satisfaction. Although the magnitude of effects of the three EI measurements on satisfaction with life varied, the findings indicated that all EI measurements significantly predicted the level of life satisfaction for both cultural groups: the higher one's EI score measured by the WLEIS, the EIS or the CAI, the higher one's level of life satisfaction in the Canadian and the Japanese university samples.

The magnitude of the standardized direct effect of EI on satisfaction with life, as evaluated by the three EI measures and the SWLS, respectively, showed a medium effect. Among the three EI measurements, the WLEIS showed the largest effect followed by the EIS. The CAI also demonstrated a significant medium effect in predicting the level of life

satisfaction. However, its poor factor loading indicates that the PM subscale is uninterpretable. Comrey and Lee (1992) suggested that only variables with loadings of .32 and above should be interpreted. For the Japanese group, the factor loading for the PM subscale (.165) showed that the PM subscale should not be interpreted. Similarly, for the Canadian group, the factor loading for the PM subscale was poor (.324); therefore, this subscale does not seem to contribute much to the EI construct measured by the CAI. Furthermore, the SC subscale showed a poor factor loading (.431) for the Japanese group. Consistent with the results of the poor internal consistency, the subscales of the CAI do not seem to be meaningful, especially for the Japanese cultural groups.

Another interesting point to note is that item 5 for the SWLS consistently showed a poor factor loading for the Japanese group across the three models (.386, .389, .389) in contrast with a good factor loading for the Canadian group across the models (.624, .626, .624). Item 5, “If I could live my life over, I would change almost nothing,” does not seem to contribute much to the latent variable of the satisfaction of life in the Japanese group. When Oishi (2006) examined the measurement invariance of the life satisfaction of American and Chinese college student samples by using the SWLS, the results indicated that items 1 to 3 were equivalent between the cultures; however, items 4 and 5 revealed significant differences in factor loadings between the two samples. He explained the differences of items 4 and 5 by using Markus and Kitayama’s views of self-enhancement versus self-criticism, which are often employed in the Western and Eastern cultures, respectively. Oishi (2006; 2007) indicated that it is not difficult to presume that Chinese who tend to employ self-criticism tendencies disagree with the statement in item 5. Various researchers report that Japanese also employ the self-criticism tendency (Markus

& Kitayama, 1998); therefore, the same interpretation seems to be appropriate to explain the consistently lower factor loadings on the item 5 for the Japanese group.

In conclusion, this study provided predictive validity evidence of EI with the level of life satisfaction. Although the WLEIS and the EIS demonstrated good factor loadings in the models, a poor factor loading on the PM subscale of the CAI provided further evidence that this measurement contains an inappropriate subscale for measuring the EI construct in the Japanese university student sample. Moreover, consistently poor factor loadings on item 5 of the SWLS for the Japanese group suggest the need for further investigation. Examination of the SWLS at an item level still remains to be tested.

Limitations of the Present Study

The results of this study must be interpreted with caution due to several limiting factors. The findings for the two cultural groups were very specific to the university student sample that was recruited in each culture. Therefore, the results should not be over-interpreted to the wider populations of Canadians and Japanese.

Limitations related to sampling also include differences in age and gender ratio between the two cultural groups. With respect to age differences, the discrepancy between the two cultural groups was about six years of age on average (Canada: 26.78 years old, Japan: 20.55 years old). A popular notion about age is that the EI score increases as people get older (Bar-On, 1997; Mayer, Caruso, & Salovey, 1999). However, the improvement in scores does not seem to apply to all domains of EI but rather specific domains. For instance, a study using the EIS indicated that young ($M = 20$ years of age) and middle ($M = 49$ years of age) adulthood did not show significant differences in EI subscales except on the Optimistic Mood Regulation subscale (Chapman & Hayslip,

2006). Since Chapman and Hayslip (2006) used three unique EI subscales that emerged in the exploratory factor analysis in their study, the exact Optimistic Mood Regulation subscale (consists of item 3, 10, 12, 22, and 23) does not exist in the current study.

However, the Managing Self-Relevant Emotions subscale contains four of five items of the Optimistic Mood Regulation subscale, which was not the only subscale for which the Canadian group had higher scores. In fact, on most of the subscales, the Canadian group scored higher than the Japanese group. Therefore, although the age differences might have impacted the results in this study, consistently higher scores of the Canadian group can also be explained by the differences in response patterns between the two cultural groups. The answer to this question can be obtained in a future study when the samples of two cultural groups do not have such age differences and the data shows the strong measurement invariance between the groups.

Another limitation related to the sample is the possible inclusion and impact of the second generation immigrants in the Canadian student sample. Although only Canadian citizens whose first language was English participated in this study, background information about the participants' immigrant generation in Canada was not collected. No first generation immigrants participated in this study; however, it is expected that the second generation immigrants may also be strongly influenced by their parents' (i.e., first generation immigrants') cultural values and their access to the cultural resources (e.g., visit to the country of origin, access to printed materials and mass media) during their upbringing (Portes & Zhou, 1993). Therefore, a distribution of ethnic background for the second-generation immigrant participants may have impacted the results.

The assessment tools used revealed another limitation of the present study. The limitation of the use of self-report measurements is that response bias cannot be completely eliminated from the respondents' answers because of the reliance on their self-perception. Some respondents may have impression management motives concerning social desirability for particular questions. By engaging in impression management, respondents can attempt to impact others' perceptions about the respondent. In a survey setting, even though the survey is anonymous, this motive can still influence on respondents, especially if the item in the survey reflects the belief that the respondent's culture values. For instance, if the respondent's culture values the attitude of making an effort, the respondent may be inclined to answer "strongly agree or agree" to the question, "I would always encourage myself to try my best," when the respondent is aware that this is not true of him.

A limitation related to self-report measurements is the underlying premise that the contexts of the questions are clear to the respondents so that they can answer without being confused. In this study, some questions asked how respondents feel and behave in certain situations. In a culture like Japan, emotional expressions and behaviours are expected to be somewhat controlled based on whom they are with and their relationships with others. Therefore, questions that asked about specific emotions or the way they behave may have needed more elaboration and clearer contexts so that they were able to answer without difficulty. Not only Japanese students but also Canadian students may have needed clarification, especially those who scored high on collectivism. For instance, the respondent's answer can differ on the following CAI question depending on whom

they imagine they might be with: “I can feel close to someone, even in moments of silence.”

Practical Applications

The literature indicates that the higher the EI score, the better the outcome individuals tend to have in such life areas as academic, physical and psychological health, as well as interpersonal relationships. EI is also related to such successful life skills as leadership. Therefore, attaining a high EI score is regarded as being relevant to a successful life (Austin et al., 2010; Gignac, 2006; Keefer et al., 2009; Law et al., 2004; Schutte et al., 2010). The findings of this study provide an opportunity to address the needs to explore individual’s cultural orientation, culturally valued factor (i.e., sympathy), as well as the cultural background when discussing the level of individual’s EI.

In educational settings, educators value the concept of EI and indicate that students can benefit from the integration of EI in the curriculum. The goals of the curriculum are likely to increase self-awareness, ability to manage emotions, and to develop and demonstrate empathy. Learning about EI and mastering the related skills will improve the students’ interpersonal skills. Thus, we can see that in the general student population, students presenting behavioural problems would benefit from a curriculum that incorporates the EI concept.

Considering the findings of this study, what educators in Japan should be aware of is that differences are evident in sympathy-related emotions and behaviours between collectivistic and individualistic Japanese students. The collectivistic students may demonstrate the sympathy-related emotions and behaviour more frequently and easily than individualistic students. However, the learning outcome of increasing the level of EI

can be met without showing such sympathy-related behaviours and emotions for the individualistic students.

On the other hand, Canadian educators may consider that EI curriculum learning goals can be met without much differentiation between individualistic and collectivistic students. However, as two paths from collectivism to the EI domains (i.e., WLEIS: UOE, CAI: AT) as well as a path from both cultural orientations to the CAI: SC were not significant, setting these domains as target EI outcomes may not be appropriate in the EI curricula. Therefore, curriculum developers may need to exclude lessons related to the attentiveness domain for both cultural orientation groups and may not need to put weight on the use of the emotion domain for collectivistic students.

EI is regarded as an important factor in the world of business (Palmer, Stough, Harmer, & Gignac, 2009; Van Rooy & Viswesvaran, 2004). Due to increasing interest in the relationship between employee's EI and the success of business negotiations, human resource departments may play a crucial role by recruiting highly qualified applicants and may incorporate EI measurements in the process of recruitment of new employees (Jordan et al., 2009; Palmer et al., 2009).

In a Japanese company, the human resources department may be interested in both the applicant's EI level and their ability and tendencies to show sympathy-related behaviours and emotions to maintain harmony at work. However, the results of this study indicated that the EI level does not always relate to sympathetic emotions and helping behaviours. Therefore, the human resource department should choose a supplemental scale to measure the individuals' tendency to maintain harmony at the company. In a Canadian company, expectations to express one's sympathetic emotions and behaviours

vary. Therefore, as an organization, a company may be less likely to be interested in these personal characteristics of the applicants. Therefore, the single use of EI measures may be appropriate.

However, if the company is multinational or multicultural, the selection of EI measurements is of critical importance due to issues of validity (e.g., whether the measure can evaluate an applicant's EI regardless of his or her cultural background). The measurement equivalence should be established across cultures prior to the use the measure. Otherwise, mean differences cannot be compared directly. The worst case scenario in using EI measurement is that the total EI score and/or the scores of particular domains of an EI measurement are meaningless to a particular cultural group. For instance, if a company short-listed either a Japanese or a Canadian applicant in the selection process, and if the CAI was used to evaluate their EI levels, the Japanese applicant's EI score appears questionable as the PM domain does not seem to be a meaningful EI construct for the Japanese group. In this case, direct score comparison between the applicants is meaningless, and the cost and time to measure the EI of the applicants is wasted. Although the EI measures that show measurement invariance across cultural groups are the most beneficial assessment tools to be used in the hiring process, no EI measurements are reported to have measurement equivalence. Therefore, perhaps, establishment of the criteria scores for different cultures for the EI measures is awaited as an alternative solution to use the EI measurements in cross-cultural settings.

Implications for Future Research

Future cross-cultural research may want to confirm the portability of the EI measurements in the study. For example, in this study, the WLEIS appeared more

culturally appropriate than the other measures. The CAI, especially, was recognized as a culturally ineffective measure in the Japanese culture. Therefore, researchers need to seek evidence that the measurements they employ have sound psychometric evidence to use in the particular culture of their interest. If no evidence is available, examination of the psychometric property and factorial invariance of the measure in the culture will be the first required step in conducting research. Consequently, more cross-cultural studies using the EI measurements to provide reliability and validity evidence are warranted.

Since the current study could only be generalized to university populations, it will be beneficial to conduct research on different age groups. A longitudinal design would enable the examination of the developmental differences in EI ability and the impact of cultural values and norms that individuals learn through education, parenting, and social interactions. As prosocial behaviours emerge early in development (Vaish et al., 2009), identifying when the differences between cultures first manifest themselves in children would allow for a deeper understanding of EI; the identification of these timings may help explain why some EI domains are more influenced by cultural factors and others domains are more universal.

Furthermore, investigation of EI, sympathy, and cultural orientation in the different occupational groups would help clarify that the paths to the EI domains can be shaped differently across occupations. For instance, do Japanese collectivistic bosses working in competitive marketplaces still demonstrate the same sympathy-related emotions and behaviours as the Japanese university student in this study? Or do they show a similar pattern to the Japanese individualistic university student? Those bosses may frequently face situations requiring them to consider and prioritize business profits

more than maintaining harmony in the work environment. Another example is whether Canadian individualistic nurses demonstrate clearer sympathy-related behaviours and emotions than Canadian individualistic university students. Individuals who have occupations in medical and social welfare may face situations that require them to exhibit their sympathetic behaviours and emotions more frequently than other occupations. Therefore, future research using different occupational groups can support or refute the generalizability of the finding of this study across occupations.

Regarding the sample size, the current research meets Kline's (2005) recommendation; the model should contain at least three indicators per factor when the sample size is small, and the sample size consisting of between 100 and 200 subjects is a "medium" size. However, considering the effects in psychological research can often be small in magnitude, future studies may benefit from gathering a larger sample in order to maximize the statistical power to observe these possibly small effects (e.g., paths to EI domains, and indirect effects).

The current study did not investigate respondents' differences at the item level between the two cultures. However, investigation of EI items would provide useful information as to whether the items reflect unique cultural factors or whether they are less effective items. A graded response model (Samejima, 1996), one of the IRT models, would enable future studies to answer item functioning questions including item difficulty and item information functions. If respondents answered some of the questions differently, future research could present cleaner results without poorly functioning items in the analyses. The identification of poorly functioning items in cross-cultural studies would contribute to a scale validation purpose of the EI measurements.

Conclusion

This study explored the cross-cultural differences in the relationships between EI, cultural orientations, and sympathy by using Canadian and the Japanese university student samples. Three self-report EI measurements, developed in Western (i.e., EIS, and CAI) and Eastern (i.e., WLEIS) countries, were used to evaluate the measurement invariance between the two cultural groups. This study also investigated the predictive validity of EI on the life satisfaction.

To begin with, the results provide information on measurement issues. None of the EI measurements established strong invariance across two cultures. Consequently, making direct score comparisons between the cultures was found to be inappropriate. Among the three measurements, the WLEIS demonstrated a better applicability in cross-cultural studies. Although exact relations among items cannot be obtained by using parceled scores, the use of EIS parceled scores also demonstrated the appropriateness to use the EIS in future cross-cultural studies. The CAI was found to be applicable only in the Canadian culture in this study. The need to investigate these measurements at the item level should be carefully incorporated into future studies of cross-cultural EI studies.

The findings also addressed the need to consider factors that impact individual differences such as cultural orientation and factors that are strongly influenced by cultures such as sympathy-related emotions and behaviours when discussing the level of EI. The Japanese students who scored high on collectivism were found to show a complete indirect effect of sympathy to the general EI domain and to the EI subscales. However, the Japanese students who scored high on individualism were found to have no indirect effect of sympathy for the same paths with an exception of an EI subscale. On

the other hand, the Canadian students were found to have more complex patterns; generally, both types of students who scored high on individualism or collectivism showed partial indirect effects to the general EI domain and to the EI subscales. However, differences in the patterns from the cultural orientations to the EI subscales exist as described in the result and the discussion sections. Markus and Kitayama's views of self and Hofstede's cultural dimensions suggest possible reasons for these various patterns within and across cultures. These differences between cultures also imply the complexity of EI score comparisons in the future cross-cultural studies.

Regarding the external validity evidence of EI, the predictive validity evidence of EI in relation to life satisfaction has been reported in the studies using samples from Western countries. This study extended the external validity evidence from a sample of a Western culture, Canada, to that of an East Asian culture, Japan.

The last point to note is theoretical conclusions of the present study. As cross-cultural differences exist in emotion regulation, expression, and recognition, there is certainly variability in abilities and skills related to EI across cultures. Consequently, the aim of trait EI measures is to capture the self-perceptions of commonalities of EI related abilities among various cultural groups. Although three trait EI measures were used in the present study, they demonstrated different levels of application. The WLEIS best reflected the commonality of EI followed by the EIS. However, the CAI only showed utility for the Canadian group. The CAI contains more specific questions without providing concrete contexts than the WLEIS which asks more general questions. Consequently, using EI measures asking more general EI questions appears to work better in cross-cultural studies than using EI measures asking specific questions as these

questions require specific contextual information and this required information may vary across cultures.

Researchers will be able to use this information to further their efforts in addressing the universal EI construct and the development of cultural bias-free EI measurements by: (a) considering the culturally unique factors (e.g., manifestation of expected behaviours and emotions related to sympathy) to examine their impact on the level of EI within and across cultures, (b) considering the individual differences that were impacted by cultural orientations to examine their influence on the level of EI within and across cultures, (c) investigating item functions of the EI measurements in cross-cultural studies and removing the inappropriate and ineffective items from the analyses, (d) collecting necessary background information of each population in order to analyze data more accurately (i.e., what generation of immigrants are the Canadian participants), and (e) balancing the gender ratio and age of the participants in order to eliminate any third factors that may impact the results. By understanding cultural factors influencing EI, researchers can refine theories and models of EI and establish the universal EI construct, which in turn helps develop the psychometrically sound EI measurements. These future works will enable researchers to compare scores of EI measurements within and across cultures fairly.

In this way, in educational settings, it is possible to implement effective EI curricula to enhance students' EI abilities and skills regardless of their cultural backgrounds and individual differences in cultural orientation. In business situations, the development of universal EI measurements will enable human resource departments to

use the appropriate EI measurements to justly evaluate applicants' EI skills and abilities regardless of their cultural backgrounds.

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College Achievement Inventory (CAI)

The following statements describe how people may think, feel, or act. Please rate how much you agree with the following 70 statements by circling the appropriate number.

1 2 3 4 5

Strongly disagree Strongly agree

1. I have trouble keeping my attention focused when working.	1	2	3	4	5
2. I talk too much.	1	2	3	4	5
3. I feel that I am a person of worth, at least on an equal plane with others.	1	2	3	4	5
4. I feel in tune with people around me.	1	2	3	4	5
5. I get panicky that others might see me faint or be sick or ill.	1	2	3	4	5
6. I am liked by most people who know me.	1	2	3	4	5
7. I become tense if I have to talk about myself or my feelings.	1	2	3	4	5
8. I am often confused about what emotion I am feeling.	1	2	3	4	5
9. I prefer to analyze problems rather than just describe them.	1	2	3	4	5
10. I feel that I have a number of good qualities.	1	2	3	4	5
11. I have a lot in common with the people around me.	1	2	3	4	5
12. I have trouble doing leisure activities quietly.	1	2	3	4	5
13. I would find it difficult to drink something if in a group of people.	1	2	3	4	5
14. All in all, I am inclined to feel that I am a failure.	1	2	3	4	5
15. When mixing socially, I am uncomfortable.	1	2	3	4	5
16. I am forgetful in my daily activities.	1	2	3	4	5
17. I feel anxiety about something or someone almost all the time.	1	2	3	4	5
18. When I am upset, I don't know if I am sad, frightened, or angry.	1	2	3	4	5
19. I am an outgoing person.	1	2	3	4	5
20. I have trouble waiting in line or taking turns with others.	1	2	3	4	5
21. I am worried people will think my behaviour is odd.	1	2	3	4	5
22. I fidget (with my hands or feet) or squirm in my seat.	1	2	3	4	5
23. I feel I do not have much to be proud of.	1	2	3	4	5
24. I am at ease meeting people at parties, etc.	1	2	3	4	5
25. I feel left out.	1	2	3	4	5
26. I have feelings that I can't quite identify.	1	2	3	4	5
27. I have trouble listening to what other people are saying.	1	2	3	4	5
28. I am never happier than when alone.	1	2	3	4	5
29. I take a positive attitude toward myself.	1	2	3	4	5
30. I am restless or overactive.	1	2	3	4	5
31. I don't know what's going on inside me.	1	2	3	4	5
32. It is difficult for me to find the right words for my feelings.	1	2	3	4	5
33. I am able to describe my feelings easily.	1	2	3	4	5

34. I am happy most of the time.	1	2	3	4	5
35. I would get tense if I had to carry a tray across a crowded cafeteria.	1	2	3	4	5
36. I find it hard to describe how I feel about people.	1	2	3	4	5
37. No one really knows me well.	1	2	3	4	5
38. I find myself worrying that I won't know what to say in social situations.	1	2	3	4	5
39. I worry I'll lose control of myself in front of other people.	1	2	3	4	5
40. I make careless mistakes or have trouble paying close attention to detail.	1	2	3	4	5
41. I usually expect to succeed in things I do.	1	2	3	4	5
42. I give answers to questions before the questions have been completed.	1	2	3	4	5
43. On the whole, I am satisfied with myself.	1	2	3	4	5
44. There are people who really understand me.	1	2	3	4	5
45. People tell me to describe my feelings more.	1	2	3	4	5
46. I am satisfied with my life.	1	2	3	4	5
47. People are around me but not with me.	1	2	3	4	5
48. I have trouble finishing job tasks or schoolwork.	1	2	3	4	5
49. I interrupt others when they are working or playing.	1	2	3	4	5
50. Life is a strain for me much of the time.	1	2	3	4	5
51. So far I have gotten the important things I want in life.	1	2	3	4	5
52. I prefer to just let things happen rather than to understand why they turned out this way.	1	2	3	4	5
53. Being in touch with emotions is essential.	1	2	3	4	5
54. I hardly ever expect things to go my way.	1	2	3	4	5
55. I prefer talking to people about their daily activities rather than their feelings.	1	2	3	4	5
56. I am distracted when things are going on around me.	1	2	3	4	5
57. I am nervous mixing with people I don't know well.	1	2	3	4	5
58. People often disappoint me.	1	2	3	4	5
59. I can feel close to someone, even in moments of silence.	1	2	3	4	5
60. I rarely count on good things happening to me.	1	2	3	4	5
61. I find examination of my feelings useful in solving personal problems.	1	2	3	4	5
62. There are people I can talk to.	1	2	3	4	5
63. I worry I might do something to attract the attention of other people.	1	2	3	4	5
64. When mixing in a group, I find myself worrying I will be ignored.	1	2	3	4	5
65. No one cares much what happens to me.	1	2	3	4	5
66. I have problems organizing my tasks and activities.	1	2	3	4	5
67. I can feel conspicuous standing in a line.	1	2	3	4	5
68. I am tense mixing in a group.	1	2	3	4	5
69. I am unsure whether to greet someone I know only slightly.	1	2	3	4	5
70. I worry my head will shake or nod in front of others.	1	2	3	4	5

1 ————— 2 ————— 3 ————— 4 ————— 5

Strongly Disagree Neither agree Agree Strongly agree
disagree nor disagree

1.	I know when to speak about my personal problems to others.	1	2	3	4	5
2.	When I am faced with obstacles, I remember times I faced similar obstacles and overcame them.	1	2	3	4	5
3.	I expect that I will do well on most things I try.	1	2	3	4	5
4.	Other people find it easy to confide in me.	1	2	3	4	5
5.	I find it hard to understand the non-verbal messages of other people.	1	2	3	4	5
6.	Some of the major events of my life have led me to re-evaluate what is important and not important.	1	2	3	4	5
7.	When my mood changes, I see new possibilities.	1	2	3	4	5
8.	Emotions are one of the things that make my life worth living.	1	2	3	4	5
9.	I am aware of my emotions as I experience them.	1	2	3	4	5
10.	I expect good things to happen.	1	2	3	4	5
11.	I like to share my emotions with others.	1	2	3	4	5
12.	When I experience a positive emotion, I know how to make it last.	1	2	3	4	5
13.	I arrange events others enjoy.	1	2	3	4	5
14.	I seek out activities that make me happy.	1	2	3	4	5
15.	I am aware of the non-verbal messages I send to others.	1	2	3	4	5
16.	I present myself in a way that makes a good impression on others.	1	2	3	4	5
17.	When I am in a positive mood, solving problems is easy for me.	1	2	3	4	5
18.	By looking at their facial expressions, I recognize the emotions people are experiencing.	1	2	3	4	5
19.	I know why my emotions change.	1	2	3	4	5
20.	When I am in a positive mood, I am able to come up with new ideas.	1	2	3	4	5
21.	I have control over my emotions.	1	2	3	4	5
22.	I easily recognize my emotions as I experience them.	1	2	3	4	5
23.	I motivate myself by imagining a good outcome to tasks I take on.	1	2	3	4	5
24.	I compliment others when they have done something well.	1	2	3	4	5

25.	I am aware of the non-verbal messages other people send.	1	2	3	4	5
26.	When another person tells me about an important event in his or her life, I almost feel as though I have experienced this event myself.	1	2	3	4	5
27.	When I feel a change in emotions, I tend to come up with new ideas.	1	2	3	4	5
28.	When I am faced with a challenge, I give up because I believe I will fail.	1	2	3	4	5
29.	I know what other people are feeling just by looking at them.	1	2	3	4	5
30.	I help other people feel better when they are down.	1	2	3	4	5
31.	I use good moods to help myself keep trying in the face of obstacles.	1	2	3	4	5
32.	I can tell how people are feeling by listening to the tone of their voice.	1	2	3	4	5
33.	It is difficult for me to understand why people feel the way they do.	1	2	3	4	5

Wong and Law Emotional Intelligence Scale (WLEIS)

This scale also contains items about how people feel and act. Using the 1-7 scale below, please indicate your agreement with each item by circling the appropriate number.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree

1.	I have a good sense of why I have certain feelings most of the time.	1	2	3	4	5	6	7
2.	I have good understanding of my own emotions.	1	2	3	4	5	6	7
3.	I really understand what I feel.	1	2	3	4	5	6	7
4.	I always know whether or not I am happy.	1	2	3	4	5	6	7
5.	I always know my friends' emotions from their behaviour.	1	2	3	4	5	6	7
6.	I am a good observer of others' emotions.	1	2	3	4	5	6	7
7.	I am sensitive to the feelings and emotions of others.	1	2	3	4	5	6	7
8.	I have good understanding of the emotions of people around me.	1	2	3	4	5	6	7
9.	I always set goals for myself and then try my best to achieve them.	1	2	3	4	5	6	7
10.	I always tell myself I am a competent person.	1	2	3	4	5	6	7
11.	I am a self-motivated person.	1	2	3	4	5	6	7
12.	I would always encourage myself to try my best.	1	2	3	4	5	6	7
13.	I am able to control my temper and handle difficulties rationally.	1	2	3	4	5	6	7
14.	I am quite capable of controlling my own emotions.	1	2	3	4	5	6	7
15.	I can always calm down quickly when I am very angry.	1	2	3	4	5	6	7
16.	I have good control of my own emotions.	1	2	3	4	5	6	7

Self-Constructal Scale (SCS)

This scale describes thoughts, feelings and behaviours of you individually or in your group. Using the 1-7 scale below, please indicate your agreement with each item by circling the appropriate number on the line following that item.

1 ——— 2 ——— 3 ——— 4 ——— 5 ——— 6 ——— 7

Strongly Disagree Slightly Neither Slightly Agree Strongly
disagree disagree agree nor agree
disagree disagree

1.	I enjoy being unique and different from others in many respects.	1	2	3	4	5	6	7
2.	I can talk openly with a person who I meet for the first time, even when this person is much older than I am.	1	2	3	4	5	6	7
3.	Even when I strongly disagree with group members, I avoid an argument.	1	2	3	4	5	6	7
4.	I have respect for the authority figures with whom I interact.	1	2	3	4	5	6	7
5.	I do my own thing, regardless of what others think.	1	2	3	4	5	6	7
6.	I respect people who are modest about themselves.	1	2	3	4	5	6	7
7.	I feel it is important for me to act as an independent person.	1	2	3	4	5	6	7
8.	I will sacrifice my self-interest for the benefit of the group I am in.	1	2	3	4	5	6	7
9.	I'd rather say "No" directly, than risk being misunderstood.	1	2	3	4	5	6	7
10.	Having a lively imagination is important to me.	1	2	3	4	5	6	7
11.	I should take into consideration my parents' advice when making education/career plans.	1	2	3	4	5	6	7
12.	I feel my fate is intertwined with the fate of those around me.	1	2	3	4	5	6	7
13.	I prefer to be direct and forthright when dealing with people I've just met.	1	2	3	4	5	6	7
14.	I feel good when I cooperate with others.	1	2	3	4	5	6	7
15.	I am comfortable with being singled out for praise or rewards.	1	2	3	4	5	6	7
16.	If my brother or sister fails, I feel responsible.	1	2	3	4	5	6	7
17.	I often have the feeling that my relationships with others are more important than my own accomplishments.	1	2	3	4	5	6	7
18.	Speaking up during a class (or a meeting) is not a problem for me.	1	2	3	4	5	6	7

19.	I would offer my seat in a bus to my professor (or my boss).	1	2	3	4	5	6	7
20.	I act the same way no matter who I am with.	1	2	3	4	5	6	7
21.	My happiness depends on the happiness of those around me.	1	2	3	4	5	6	7
22.	I value being in good health above everything.	1	2	3	4	5	6	7
23.	I will stay in a group if they need me, even when I am not happy with the group.	1	2	3	4	5	6	7
24.	I try to do what is best for me, regardless of how that might affect others.	1	2	3	4	5	6	7
25.	Being able to take care of myself is a primary concern for me.	1	2	3	4	5	6	7
26.	It is important to me to respect decisions made by the group.	1	2	3	4	5	6	7
27.	My personal identity, independent of others, is very important to me.	1	2	3	4	5	6	7
28.	It is important for me to maintain harmony within my group.	1	2	3	4	5	6	7
29.	I act the same way at home that I do at school.	1	2	3	4	5	6	7
30.	I usually go along with what others want to do, even when I would rather do something different.	1	2	3	4	5	6	7

Sympathy Scale (SS)

In this part, we would like you to read each statement and indicate the extent to which you believe it describes you. Please record your judgment for each item by circling one number on the scale.

1 2 3 4 5
 doesn't doesn't don't know describes me describes me
 describe me at describe me somewhat very much
 all somewhat

1.	I am not easily moved to tears.	1	2	3	4	5
2.	Even if someone does his/her best, I think it means nothing if he/she is not successful.	1	2	3	4	5
3.	I feel like praying on behalf of someone who is going through hardship.	1	2	3	4	5
4.	Even when my opponent in a game is hurt, I don't show any consideration for him or her so as to win the game.	1	2	3	4	5
5.	When I see a person who is working hard, I feel like I want to cheer him/her up.	1	2	3	4	5
6.	I don't like to be moved by compassion for others.	1	2	3	4	5
7.	When I see others cry, I often start to cry.	1	2	3	4	5
8.	In my opinion, when someone fails, it is his/her fault, so there is no need for sympathy toward him/her.	1	2	3	4	5
9.	If the elderly or people with disabilities are standing on a bus or train without any seats offered to them, I feel sad and sympathetic toward them.	1	2	3	4	5
10.	When I learn about someone's hardship, I can't truly feel sympathy toward the person.	1	2	3	4	5
11.	When someone is ostracized from a group, I think it is probably his/her own fault.	1	2	3	4	5
12.	When I see a crying child, I feel like consoling him/ her.	1	2	3	4	5
13.	I don't like "tearjerker" movies.	1	2	3	4	5
14.	I think nothing is more important than to be sympathetic to others.	1	2	3	4	5
15.	Everything is going well with me, but when I think about a friend who is in trouble, I feel sorry for him/her.	1	2	3	4	5
16.	I always try to be kind to others.	1	2	3	4	5
17.	If I see fallen bicycles, I feel like setting them back up.	1	2	3	4	5
18.	I feel sad when I hear about a terrible accident.	1	2	3	4	5
19.	When people with different opinions confront each other, I think it is inevitable that someone's feelings get hurt.	1	2	3	4	5

20.	In my opinion, disadvantaged people must rely on themselves to improve their situation.	1	2	3	4	5
21.	I am moved when I hear of another person's hardship.	1	2	3	4	5
22.	I often cry when I watch movies or TV dramas.	1	2	3	4	5

Modified Mini-Markers (MM)

How Accurately Can You Describe Yourself?

Please use this list of common human traits to describe yourself as accurately as possible. Describe yourself as you see yourself at the present time, not as you wish to be in the future. Describe yourself as you are generally or typically, as compared with other persons you know of the same sex and of roughly your same age. Please indicate how accurately each trait describes you by circling the appropriate number, using the following rating scale.

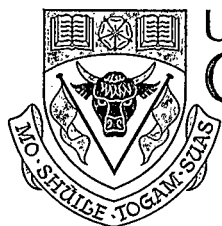
1 ——— 2 ——— 3 ——— 4 ——— 5 ——— 6 ——— 7 ——— 8 ——— 9

Extremely Inaccurate	Very Inaccurate	Moderately Inaccurate	Slightly Inaccurate	Neither Inaccurate nor Accurate	Slightly Accurate	Moderately Accurate	Very Accurate	Extremely Accurate
-------------------------	--------------------	--------------------------	------------------------	--	----------------------	------------------------	------------------	-----------------------

1. Cold	1	2	3	4	5	6	7	8	9
2. Creative	1	2	3	4	5	6	7	8	9
3. Disorganized	1	2	3	4	5	6	7	8	9
4. Efficient	1	2	3	4	5	6	7	8	9
5. Extroverted	1	2	3	4	5	6	7	8	9
6. Jealous	1	2	3	4	5	6	7	8	9
7. Kind	1	2	3	4	5	6	7	8	9
8. Intellectual	1	2	3	4	5	6	7	8	9
9. Moody	1	2	3	4	5	6	7	8	9
10. Organized	1	2	3	4	5	6	7	8	9
11. Shy	1	2	3	4	5	6	7	8	9
12. Sympathetic	1	2	3	4	5	6	7	8	9
13. Talkative	1	2	3	4	5	6	7	8	9
14. Uncreative	1	2	3	4	5	6	7	8	9
15. Unenvious	1	2	3	4	5	6	7	8	9
16. Warm	1	2	3	4	5	6	7	8	9
17. Withdrawn	1	2	3	4	5	6	7	8	9
18. Systematic	1	2	3	4	5	6	7	8	9
19. Careless	1	2	3	4	5	6	7	8	9
20. Temperamental	1	2	3	4	5	6	7	8	9
21. Touchy	1	2	3	4	5	6	7	8	9
22. Philosophical	1	2	3	4	5	6	7	8	9
23. Complex	1	2	3	4	5	6	7	8	9
24. Imaginative	1	2	3	4	5	6	7	8	9
25. Quiet	1	2	3	4	5	6	7	8	9

Appendix B

Permission from the Conjoint Faculties Research Ethics Board



CERTIFICATION OF INSTITUTIONAL ETHICS REVIEW

This is to certify that the Conjoint Faculties Research Ethics Board at the University of Calgary has examined the following research proposal and found the proposed research involving human subjects to be in accordance with University of Calgary Guidelines and the Tri-Council Policy Statement on *"Ethical Conduct in Research Using Human Subjects"*. This form and accompanying letter constitute the Certification of Institutional Ethics Review.

File no: **5493**
Applicant(s): **Eriko Fukuda**
Department: **Applied Psychology, Division of**
Project Title: **Cross-Cultural Validation of Emotional Intelligence**
Measurements for Japanese and Canadian University Students
Sponsor (if applicable):

Restrictions:

This Certification is subject to the following conditions:

1. Approval is granted only for the project and purposes described in the application.
2. Any modifications to the authorized protocol must be submitted to the Chair, Conjoint Faculties Research Ethics Board for approval.
3. A progress report must be submitted 12 months from the date of this Certification, and should provide the expected completion date for the project.
4. Written notification must be sent to the Board when the project is complete or terminated.

Janice Dickin, Ph.D, LLB,

Chair

Conjoint Faculties Research Ethics Board

Date:

Distribution: (1) Applicant, (2) Supervisor (if applicable), (3) Chair, Department/Faculty Research Ethics Committee, (4) Sponsor, (5) Conjoint Faculties Research Ethics Board (6) Research Services.

Appendix C

Information Letter



UNIVERSITY OF
CALGARY

Faculty of Education, Division of Applied Psychology

Consent Form

Name of Researcher: Eriko Fukuda, M.Sc.
Supervisor: Dr. Don Saklofske

Title of Project: Cross-cultural validation of emotional intelligence measurements for Japanese and Canadian university students

This consent form, a copy of which has been given to you, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

The University of Calgary Conjoint Faculties Research Ethics Board has approved this research study.

Purpose of the Study: The objective of this study is two fold: 1) to examine the construct of EI cross-culturally with Japanese and Canadian students and 2) to validate the psychometric properties of the emotional intelligence measurements.

What Will I Be Asked to Do? You will be asked to fill out seven questionnaires and selected items from an additional questionnaire. The questionnaires are: the College Achievement Inventory (CAI), Schutte Self-Report Inventory (SSRI), the Wong and Law Emotional Intelligence Scale (WLEIS), the Satisfaction with Life Scale (SWLS), the Sympathy Scale (O), the Collectivism Scale (I/C: Y), the Self-Concept Scale (I/C: S), and the Mini-Markers (MM). These questionnaires ask how you describe your emotions and others' emotions, personality correlates, psychological well-being, and cultural orientation. All of these questionnaires have been used with university students in other studies, and are written at a student's level of understanding. The time required to fill out these questionnaires is approximately 30-40 minutes. Your participation is voluntary and you may withdraw from the study at any time, in which case records of any information collected from you would be destroyed by the examiner before you leave the room in your presence. After you submitted the completed questionnaire, the information on your questionnaire cannot be removed from the dataset and destroyed because questionnaires are anonymous and thus you are assured of both confidentiality and anonymity.

What Type of Personal Information Will Be Collected? Participation is completely anonymous and confidential. However, information on students' academic, socioeconomic, and ethnic background is collected as demographic information. No one except the investigator and the supervisor will be allowed to see or hear any of your answers on the questionnaires. Students are tested as groups; therefore, there are no names on any questionnaires. Only cultural group information will be summarized for any presentation or publication of results.

Are there Risks or Benefits if I Participate? This study will involve no greater risks than would normally occur in daily life.

What Happens to the Information I Provide? The questionnaires will be kept in a locked cabinet that is only accessible to the investigator and the supervisor. The questionnaires will be permanently destroyed after five years of publication. The electronic data will be stored on a computer disk for continuing research purposes, and destroyed after it is deemed no longer useful. The anonymous data may be shared with research collaborators at other institutions.

Consent to Participating in This Research: Participating in/completing the tasks involved in the study will be taken as an indication of consent.

Questions/Concerns: If you have further questions concerning matters related to this research, please contact: 1) Eriko Fukuda, (403) 210-3987, efukuda@ucalgary.ca 2) Dr. Don Saklofske, (403) 220-4050, dhsaklof@ucalgary.ca. If you have any concerns about the way you've been treated as a participant, please contact Bonnie Scherrer, Research Services Office, University of Calgary at (403) 220-3782; email bonnie.scherrer@ucalgary.ca.

This consent form has been given to you to keep for your records and reference.

Appendix D

Sample R Codes for Creating Confidence Intervals for Indirect Effects

(Selig & Preacher, 2008)

```
#####
# This code can be edited in this window and #
# submitted to Rweb, or for faster performance #
# and a nicer looking histogram, submit      #
# directly to R.                             #
#####
a=0.597
b=0.226
astd=0.126
bstd=0.1
rep=20000
conf=95
avec=rnorm(rep)*astd+a
bvec=rnorm(rep)*bstd+b
ab=avec*bvec
low=(1-conf/100)/2
upp=((1-conf/100)/2)+(conf/100)
LL=quantile(ab,low)
UL=quantile(ab,upp)
LL4=format(LL,digits=4)
UL4=format(UL,digits=4)
#####
# The number of columns in the histogram can #
# be changed by replacing 'FD' below with    #
# an integer value.                          #
#####
hist(ab,breaks='FD',col='skyblue',xlab=paste(conf,'% Confidence Interval
','LL',LL4,' UL',UL4),
main='Distribution of Indirect Effect')
```