

# Toward A Comprehensive Model of Cultural Intelligence: Antecedents, Cultural Adaptation, and Performance Outcomes

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The purpose of this study was to describe the conceptual foundation of cultural intelligence (CQ) as well as validation of the 20-item, four-factor Cultural Intelligence Scale (CQS). This study empirically examined the relationship between CQ and its antecedents (personality, IQ, emotional intelligence, international experience, and language ability), and further provided a theoretical model of future study that explores how CQ impacts the cross-cultural adaptation and assignment performance of expatriates. Analyses of the empirical findings demonstrated that each of the four factors of CQ (metacognitive CQ, cognitive CQ, motivational CQ and behavioral CQ) was influenced by the other variables such as personality, emotional intelligence, language ability, and international experience in significant yet varying degrees. General mental ability (IQ) did not relate to the four factors of CQ. The empirical findings also supported an incremental and predictive validity that CQ increased explained variance of cultural adaptation, over and above demographic characteristics, personality, general mental ability, emotional intelligence, language ability, and international experience. Based on these empirical results, this study proposed a theoretical model of CQ and discussed the direction for future research.

Key words: cultural intelligence, antecedents, cultural adaptation, expatriate performance

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## I . Introduction

The relentless pace of globalization and rapid progress in information technology have enabled an increasing number of companies to enter a broader and more diverse set of markets. By moving to global markets, many expatriate employees in firms are now exposed to unfamiliar cultural contexts. Cultural differences have led to several challenges for

expatriate employees, such as cultural shock, communication difficulties, uncertain situations in conflict resolution, and misinterpretation of a foreigner's intentions (Caligiuri, 2000; Orr & Levitt, 2004). Expatriates should deal with the stress and low job-satisfaction resulting from cultural shock, and struggle with cross-cultural adjustment to complete their international assignments successfully (Jassawalla, Truglia & Garvey, 2004).

Unfortunately, research found that many expatriates did not succeed in their international assignments, and returned before they had been officially completed. (Newman, Bhatt & Gutteridge, 1978; Black, Mendenhall, & Oddou, 1991; Caligiuri, 2000; Gabel, Dolan & Cerdin, 2005). Unsuccessful international assignment is represented by adjustment inadaptability, burnout, premature return, and immediate turnover after repatriation (Black, 1988; Black et al., 1991; Black & Mendenhall, 1990; Black & Stephens, 1989). At an individual level, unsuccessful international assignment causes damage related to managerial self-confidence and mental stress or depression for both expatriate employees and their families (Mendenhall & Oddou, 1985). At the organizational level, failure of international assignments not only means significant direct costs, but also causes a negative impact on future interactions between expatriates' countries and the host countries (Caligiuri, 2000; Gabel, Dolan & Cerdin, 2005).

Correspondingly, cross-cultural studies are increasingly in demand to resolve misunderstandings and conflicts that arise from cultural barriers in complex international working environments, and lead international assignment effectiveness (Adler, 1997; Gelfand, Nishii, Holcombe, Dyer, Ohbuchi & Fukuno, 2001; Kraimer, Wayne & Jaworski, 2001; Lievens, Harris, Van Keer & Bisqueret,

2003; Takeuchi, Yun & Tesluk, 2005). Responding to this need, Earley and Ang (2003) developed the multifactor concept of cultural intelligence (CQ). CQ is not only defined as the capability of an individual to adapt effectively to a new cultural context, but also his or her ability to manage people from different cultural backgrounds (Earley & Ang, 2003; Earley, Ang & Tan, 2006; Ang, Dyne & Koh, 2006). CQ is a multifactor concept that consists of metacognitive, cognitive, motivational, and behavioral factors (Earley & Ang, 2003; Earley, Ang & Tan, 2006; Ang, Dyne & Koh, 2006).

Although CQ is based on the larger domain of individual difference that consists of personality, capability, and interest, it is most closely associated with an individual's capability (Ackerman & Humphreys, 1990; Early & Ang, 2003; Earley, Ang & Tan, 2006). Moreover, CQ is conceptually differentiated from general capabilities, such as general cognitive ability (IQ), emotional intelligence (EQ) or social intelligence (SQ) since CQ concentrates on culturally relevant capabilities (Early & Ang, 2003). This paper demonstrates how CQ is related to other individual differences, such as personality, IQ, emotional intelligence, international experience and language ability, but also how it differs from them. Specifically, this paper discusses the differences between CQ and emotional intelligence.

Although conceptual theoretical research on CQ has been mainstream to date (Sternberg & Grigorenko, 2006; Ang, Dyne, Koh, Ng, Templer, Tay & Chandrasekar, 2007), there has been a recent increase in empirical research on CQ. Previous studies have mainly focused on the construct validity of CQ in relation to other intelligence constructs, or personality (Ang et al., 2006; Ang et al., 2007; Templer, Tay & Chandrasekar, 2006), few studies, however, have demonstrated the consequences of CQ due to the novelty of the construct. Thus, this paper proposes a conceptual model of how CQ influences individual and interpersonal outcomes, such as expatriate performance and cultural adaptation.

## II. Background and Literature Review

### 2.1 Conceptualization of CQ

Consistent with Schmidt and Hunter's (2000) definition of general intelligence as the capability to read and accurately understand concepts and engage in problem solving, CQ is defined as the capability to function effectively in culturally diverse environments (Earley & Ang, 2003; Earley, Ang & Tan, 2006). The construction of CQ

is not simply social intelligence or emotional intelligence with minor modifications for multiculturalism (Earley & Ang, 2003; Ang et al., 2007). The construct of CQ is grounded in Sternberg and Detterman's (1986) multiple-loci of intelligence framework. CQ is a multidimensional construct as well as an extended contemporary view to comprehending intelligence (Earley & Ang, 2003; Ang et al., 2007).

CQ is composed of the four fundamental components: meta-cognitive facet, cognitive facet, motivational facet, and behavioral facet (Earley & Ang, 2003; Earley, Ang & Tan, 2006; Ang et al., 2006; Ang et al., 2007; Ng & Earley, 2006; Templer, Tay & Chandrasekar, 2006). The four components of CQ are consistent with contemporary perspectives of intelligence that encompasses metacognitive, cognitive, motivational, and behavioral factors (Sternberg & Detterman, 1986; Sternberg et al., 2000).

Meta-cognitive CQ refers to an individual's mental capability to acquire, be aware of, comprehend, and monitor cultural knowledge (Earley & Ang, 2003; Earley, Ang & Tan, 2006; Ang et al., 2006; Ang et al., 2007). Meta-cognitive CQ reflects higher-level cognitive strategies (thinking about thinking) that enable individuals to promote new heuristics and rules for cross-cultural interactions. Cognitive CQ refers to declarative knowledge about culture, and reflects the

specific knowledge of content and mental maps concerning a target culture that is gained through meta-cognitive mechanisms (Earley & Ang, 2003; Earley, Ang & Tan, 2006; Earley & Peterson, 2004). Motivational CQ reflects individual capability to derive energy and motivation toward learning and developing intercultural competencies (Earley & Ang, 2003; Earley, Ang & Tan, 2006; Ang et al, 2006). Finally, behavioral CQ refers to individual capability to display adequate verbal and non-verbal actions in cross-cultural scenarios or environments (Earley & Ang, 2003; Earley, Ang & Tan, 2006; Ang et al, 2006).

## 2.2 Antecedents of CQ

Examining antecedents of CQ is crucial to understand why some individuals are more effective when managing culturally diverse situations than others. Intercultural competence research has classified antecedents of individual difference from demographic variables such as personality traits, a state-like capability (IQ, emotional intelligence, social intelligence, and language ability), and previous experience from situational variables (cultural distance, predeparture training, the nature of the task, job role, and family adjustment) (Dinges & Baldwin, 1996; Ng & Earley, 2006). Among these numerous variables, this paper focuses on

demographic variables such as personality, IQ, emotional intelligence, language ability, and international experience as antecedents of CQ.

With regard to personality, it is inherited and resistant to change, but stable trait-like individual differences (Chen, Gully, Whiteman, & Kilcullen, 2000). Unlike personality, CQ is **more of** a state-like individual difference and thus developed over time through experience, education, and training (Earley & Ang, 2003; Ng & Earley, 2006). Ang, Van Dyne, and Koh (2006) examined relationships between CQ and Big Five personality, and demonstrated the discriminant validity of the four dimensions of CQ compared to the Big Five personality factors.

Other factors that influence CQ would be general cognitive ability (IQ), and emotional intelligence (EQ). CQ is similar to IQ and EQ, but differs from them (Earley & Ang, 2003). They are similar since they are all concerned with a set of capabilities, rather than preferred ways of behaving (Earley & Ang, 2003; Earley, Ang, & Tan, 2006). However, they are different because CQ concentrates on culturally relevant capabilities while IQ is not specific to particular contexts, such as cross-cultural environments (Ackerman & Humphreys, 1990; Hough & Schneider, 1996). Moreover, IQ cannot explain behavioral or motivational

domains of intelligence. On the other hand, EQ does not provide an adequate explanation, nor is it as valid when applied in a cross-cultural context unlike CQ (Ang et al., 2007; Earley & Ang, 2003). In other words, individuals who have a high EQ in their own culture may be entirely incapable of dealing effectively with others who do not share a common cultural background and understanding, since many social or emotional cues used to make sure of another individual's emotional status vary from one culture to another (Ang et al., 2007; Earley & Ang, 2003). In contrast, CQ is a culture-free construct that can be applied to cross-cultural situations (Ang et al., 2007, Earley & Ang, 2003; Ng & Earley, 2006).

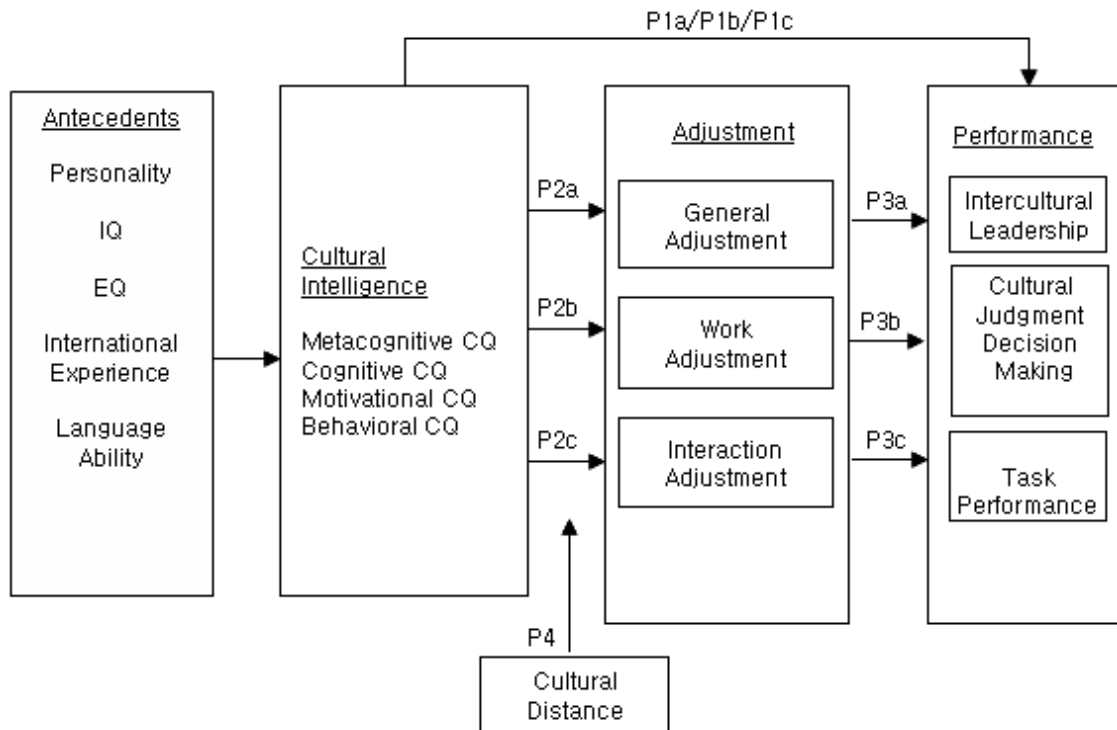
Previous research found that language skills influence the development of interpersonal interactions (Marschan et al., 1997; Marschan-Piekkari et al., 1999a, b). Since CQ deals with cross-cultural interactions among individuals from different cultural backgrounds, one's language skills within a host country may be an important predictor of individual CQ. Language skills are essential for gaining cultural knowledge about important elements of a society such as the legal and economic systems, religious beliefs, and social systems in different cultures. Therefore, mastering a host-country's language helps develop CQ.

International experience such as working

abroad, studying abroad, and short visits to foreign countries helps individuals to gain knowledge, skills and behaviors required for intercultural interactions (Takeuchi et al., 2005; Gudykunst & Ting-Toomey, 1998), and to develop adaptability and flexibility in different cultural environments (Sambharya, 1996). Individuals in cross-cultural interactions learn other cultures' customs and norms by experiencing directly or observing the host countries' behaviors (Bandura, 1997). Moreover, individuals who have more international experiences in other cultures are more likely to possess more comprehensive cognitive schemata that allow individuals to have an open-mind and flexibility, positive views towards other cultures, respect for others, tolerance of others' behaviors and norms, and fluency in multiple languages (Bandura, 1977).

### 2.3 Consequences of CQ

Beyond examining the antecedents of CQ or proving its construct validity, future research needs to advance theoretical and empirical studies concerning the outcomes influenced by CQ such as successful functioning in cross-cultural interactions. Ang et al (2006) attempted to prove CQ's predictive validity over cultural judgment and decision making, cultural adaptation, task performance, and cross-cultural adjustment.



<Figure 1> The Nomological Network of Cultural Intelligence

In another study, Templer et al. (2006) demonstrated that the motivational factor of CQ was positively related to cross-cultural adjustment in terms of work, general, and interaction adjustment of global professionals. However, due to the novelty of the CQ construct, few theoretical or empirical studies address how CQ influences expatriate adjustment and performance effectiveness during international assignments. Thus, this study proposes a concrete model that places CQ in a nomological network of relevant antecedents, moderator, and consequences

as shown in Figure 1. This study predicts that individuals with high CQ are more likely to perform and adjust better in cross-cultural contexts. Thus, CQ functions as a causal factor or facilitator of outcomes such as adjustment and effective performance in cross-cultural environments.

#### 2.4 CQ in Relation to Other Cross-Cultural Competencies

Paige (2004) conducted comprehensive review of cross-cultural assessment instruments,

and provided ten scales of intercultural competencies that can be compared to the CQS: Cross-Cultural Adaptability Inventory (CCAI; Kelley & Meyers, 1995); Cross-Cultural World Mindedness (CCWM; Der-Karabetian, 1992); Cultural Shock Inventory (CSI; Reddin, 1994); Culture General Assimilator (CGA; Cushner & Brislin, 1996); Global Awareness Profile Test (GAPT; Corbitt, 1998); Intercultural Development Inventory (IDI; Hammer & Bennett, 1998); Intercultural Sensitivity Inventory (ISI; Bhawuk & Brislin, 1992); Multicultural Awareness-Knowledge-Skills Survey (MAKSS; D'Andrea, Daniels, & Heck, 1991); Overseas Assignment Inventory (OSI; Tucker, 1999); and Sociocultural Adaptation Scale (SAS; Ward & Kennedy, 1999). Although Paige (2004) did not include Matsumoto et al.'s (2001) Intercultural Adjustment Potential Scale (ICAPS) in his review of intercultural instruments, this instrument is also identified for comparison with the CQS in this study.

Table 1 gives an overview of other scales of intercultural competencies, and demonstrates the four factors of CQ that overlap throughout. None of these intercultural assessment scales includes all of the four facets of CQ. Moreover, seven scales (CCAI, CCWM, CSI, ICAPS, IDI, MAKSS and OAI) involve personality characteristics, attitudes, and values as well as cross-cultural capa-

bilities (Paige, 2004).

As shown in Table 1, previous cross-cultural competency instruments are not explicitly based on a multidimensional theory of intelligence, and frequently mix capability and personality characteristics. Unlike other intercultural competency scales, CQ is clearly defined as a set of capabilities, consistent with contemporary theories of intelligence. Thus, CQ is a newly emerging construct based on a theoretically grounded, integrative, and coherent framework by overcoming limitations in other intercultural competency scales.

### III. Development of Proposition

#### 3.1 CQ and Performance in International Assignments

Early research has demonstrated that individual differences such as personality, and capability have an impact on job performance (Barrick & Mount, 1991; and Schmidt & Hunter, 1998). While other individual differences such as personality (oneness to experience and extroversion), IQ, and emotional intelligence predict job performance, CQ tends to be a better predictor of international assignment performance since it is specific to particular types

〈Table 1〉 Comparison between CQS and Other Intercultural Assessment Scales

Author	Instrument	Meta cognition	Cognition	Motivation	Behavior
Bhawuk & Brislin, 1992	Intercultural Sensitivity Inventory (ISI)				v
Corbitt, 1998	Global Awareness Profile Test (GAPT)		v		
Cushner & Brislin, 1996	Culture General Assimilator (CGA)	v	v		
D'Andrea, Daniels, & Heck, 1991	Multi-cultural Awareness-Knowledge-Skills Survey (MAKSS)	v	v	v	
Der-Karabetian, 1992	Cross-Cultural World Mindedness (CCWM)				
Hammer & Bennett, 1998	Intercultural Development Inventory (IDI)	v	v		v
Kelley & Meyers, 1995	Cross-Cultural Adaptability Inventory (CCAI)	v		v	v
Matsumoto et al. (2001)	Intercultural Adjustment Potential Scale (IAPS)				
Reddin, 1994	Cultural Shock Inventory (CSI)	v	v		
Tucker, 1999	Overseas Assignment Inventory (OAI)				v
Ward & Kennedy, 1999	Sociocultural Adaptation Scale (SAS)		v		v

of culturally diverse situations (Ang et al, 2007; Earley & Ang, 2003). Those who have higher levels of CQ are more likely to handle cultural shock while in the host country, reduce and control cross-cultural mixed identities and role conflicts, integrate new behavior, norms, and roles into the foundation offered by home cultures, and

eventually exhibit better performance such as inter-cultural leadership, cultural judgment decision making, communication effectiveness, task performance, adaptive performance, multicultural team functioning, and organization citizenship behavior (OCB)-helping in cross-cultural environments (Early & Ang, 2003; Earley, Ang & Tan, 2006).

While some research has asserted more universal leadership qualities, other research identifies the cultural specificity of effective leadership (Hui & Graen, 1997). Effective leadership varies across cultures since leadership style that is effective in one culture is not necessarily effective in others. Culturally intelligent leaders are very sensitive to a variety of cultural cues, and possess an ability to function effectively across cultural boundaries (Offermann & Phan, 2002). Culturally intelligent leaders can extract innovation and creativity by overcoming the challenge of managing a diverse workforce. Culturally intelligent leadership requires not only a deep understanding of cultures around the world, but also a capability to adjust his or her leadership style to the norms and cultures of his or her followers (Earley, Ang, & Tan, 2006). There are five cultural dilemmas to reconcile for effective leadership in a culturally diverse workplace: independence versus interdependence, egalitarianism versus hierarchy, assertiveness versus sensitivity, accuracy versus diplomacy, and punctuality versus patience (Earley, Ang & Tan, 2006). Leaders with high level of CQ know how to balance these cultural dilemmas. In order to identify and reconcile cultural dilemmas, culturally intelligent leaders continue to obtain cultural knowledge and sharpen their cultural strategic thinking. Thus, this paper proposes that CQ posi-

tively relates to intercultural leadership.

Proposition 1a: CQ will relate positively to intercultural leadership.

Cultural judgement decision making (CJDM) requires analytical capabilities such as deliberate reasoning and evaluation of evidence and comparisons of alternatives (Einhorn & Hogarth, 1981; Ang et al., 2007). Since individuals with high CQ can better acquire and understand cultural knowledge and elaborate cultural schema, they also tend to possess more knowledge about a host country's culture, predict cultural preferences of others and adapt mental models during cross-cultural interactions (Ang et al., 2007). They generally suspend judgement in a cross-cultural interaction until further accurate information is collected, and correspondingly make higher quality cultural decisions (Ng & Earley, 2006). Thus, this paper proposes that CQ positively relates to CJDM effectiveness.

Proposition 1b: CQ will relate positively to cultural judgement and decision making (CJDM) effectiveness.

Those with high levels of metacognitive and cognitive CQ are more likely to perform better since they have more ability in terms of culture-related cognitive processing. They

possess knowledge about different cultures that is essential for effective decision-making and problem solving in cross-cultural environments (Earley & Ang, 2003). Moreover, individuals with a high level of motivational CQ consistently direct attention and effort toward accomplishing a task, and thus increase their task performance (Earley & Ang, 2003). Finally, behavioral CQ also influences expatriates' task performance requiring individuals to exhibit appropriate verbal and non-verbal actions in cross-cultural situations because such performance calls for learning appropriate norms and behaviors in host countries, which are inevitable factors of expatriate performance (Earley & Ang, 2003). Thus, this paper proposes that CQ positively relates to task performance.

Proposition 1c: CQ will relate positively to task performance.

### 3.2 CQ and Cultural Adjustment

Culturally intelligent people are very sensitive to a variety of cultural cues, and possess an ability to function effectively across cultural boundaries (Earley & Ang, 2003). A culturally intelligent person possesses not only a deep understanding of cultures around the world, but also a capability to adjust his or her behavior,

norm, and attitude to the host country's culture (Earley, Ang, & Tan, 2006). Earley and Ang (2003) proposed that individuals with higher levels of cultural intelligence are more likely to adjust to the new host nation since they have the requisite cognitive, motivational, and behavioral repertoire in responding to international assignments.

An expatriate on international assignment should adapt to three facets of the new environment (Earley & Ang, 2003; Black et al., 1991; Black & Stephens, 1989). First, an expatriate should adjust to the general non-work environment, such as food, transportation, entertainment, health care, safety, and overall life satisfaction. Second, an expatriate must adjust to the work environment including the local unit culture, policies, procedures, operations, and requirement of tasks. Third, an expatriate should adapt to interacting with host nationals, and engage in active interpersonal relations with members of the host nation. Expatriates with a higher level of cultural intelligence are more likely to make social networks with the host nationals, and reduce cultural frictions or cultural shock as they cope with the new work or non-work environment (Earley & Ang, 2003; Earley, Ang & Tan, 2006).

International assignments in other countries require individuals to be sensitive to different cultures, capable of understanding and interpreting other cultures, and over-

coming culture shock and cultural obstacles as they are encountered (Black et al., 1991; Black & Stephens, 1989). Removed from familiar cultural settings, expatriates experienced tremendous stress from culture shock including symptoms such as impatience, depression, loss of appetite, poor sleep, irritability and role shock (Earley & Ang, 2003). Difficulties in adjustment include many issues, such as religious problems, adjusting to food and climate, adapting to social customs and norms, educational problems, health care problems, and family problems (Black et al., 1991; Black & Stephens, 1989). A person with higher levels of CQ can adjust to the new nation more successfully than a person with lower levels of CQ since those with high levels of CQ have the requisite cognitive ability, cultural motivation, and the behavioral repertoires of response as they adapt to the new environment (Earley & Ang, 2003). Thus, this paper proposes that expatriates with higher levels of CQ are more likely to adjust to the new countries with minimizing cultural fatigue or cultural shock.

Proposition 2a: CQ will relate positively to general adjustment.

At the workplace of the host-country, an expatriate must interact with local people, and adjust to new work norms, routines,

and practices (Black et al., 1991; Black & Stephens, 1989; Caligiuri, 2000). In order to be successful at work, an expatriate should be able to observe prevailing social norms and the expectations of colleagues, and perform not only technical but also in more contextual activities that are managerial, social, and expatriate specific in nature (Black et al., 1991; Black & Stephens, 1989; Caligiuri, 2000; Earley & Ang, 2003). Individuals with higher levels of CQ are more sensitive to the tacit nuances of the adequate contextual activities that are required at the local workplace. A person with a higher CQ is prone to make balances in the distribution of power, privilege, and prestige in ways that vary across cultures. Similar to the concept of general adjustment, this paper proposes that work adjustment in international assignment is positively related to a person's level of CQ.

Proposition 2b: CQ will relate positively to work adjustment.

Black et al. (1991) argue that social interactions, especially contact with host nationals are a significant factor in cross-cultural adjustment. Interaction adjustment refers to developing harmonious interpersonal relations with members of the host country (Gabel, Dolan & Cerdin, 2005; Earley & Ang, 2003). Social interactions

with host nationals offer expatriates emotional support and beneficial assistance, and allow them to form more positive attitudes and feelings toward host nationals, which in turn buffer their psychological stress and develop psychological well-being (Church, 1982). Individuals with higher levels of CQ are more likely to build social networks with the host nationals, and voluntarily look for friends and colleagues from the host society (Earley & Ang, 2003). Thus, this paper proposes that an expatriate with higher CQ tends to develop networks with local people by overcoming the discrepancies of status inconsistencies, and the differences in the hierarchical distribution of power.

Proposition 2c: CQ will relate positively to interaction adjustment.

### 3.3 Expatriate Adjustment and Performance

Much of the expatriate literature has demonstrated that poor adjustments in cross-cultural environments lead to poor performance (Caligiuri, 2000). International assignments provide expatriates with considerable challenges such as of cultural and instrumental barriers in both work and general situations, which translate into psychological stress (Bhaskar-Shrinivas, Harrison, Shaffer, & Luk, 2005). Psychological stress

greatly influences work performance by causing fatigue, which decreases the amount of energy and effort required for successful job performance (Cohen, 1980). Shaffer et al. (2001) argued that well-adjusted expatriates would perform better since they spent more personal resources such as time, effort, and emotional investment for improving their performance.

Cross-cultural adjustment refers to the psychological and socio-cultural changes an individual makes toward reducing friction and increasing fit between the expatriates and the new environment in the host country (Aycan, 1997; Caligiuri, 2000). Well-adjusted managers or leaders are more likely to integrate new behavior, norms and roles into the host culture, and better understand a culturally diverse workforce, which is required for effective global leadership (Caligiuri & Stahl, 2005). Effective leaders rapidly respond to the needs and environment of a culturally diverse workforce, and build mutual trust by adjusting their behaviors or attitudes to the new members. Culturally well-adjusted leaders tend to build a more integrative vision that guides, inspires, motivates and ultimately provides meaning and importance to the activities of individuals from culturally different backgrounds (Earley, Ang, & Tan, 2006). Thus, this paper proposes that those who are better adjusted at general life, work, and

social interaction will have better intercultural leadership skills.

Proposition 3a: Adjustment will relate positively to intercultural leadership.

Adaptabilities for cultural diversity and differences influence how expatriates search for information in cross-cultural environments (Sutcliffe, 1994). Acquiring an effective way of broader environmental scanning helps expatriates to develop overall decision making through better strategic opportunities and more local resources (Sutcliffe, 1994). For example, managers who poorly adjust to different cultures are less likely to engage in broader cross-cultural search or scanning activities that would be essential for efficient decision making. In contrast, those who actively conduct wider environmental scanning through interaction with host nationals tend to collect higher quality information, and correspondingly make better decisions (Sutcliffe & Weber, 2003). Thus, this paper proposes that expatriates who are better adjusted in their general life, work, and social interaction are more likely to make better decisions.

Proposition 3b: Adjustment will relate positively to cultural judgement decision making.

Task performance refers to successful

accomplishment of international assignments, including achieving particular goals or projects (Bhaskar-Shrinivas, Harrison, Shaffer, & Luk, 2005). Bhaskar-Shrinivas et al. (2005) argued that developing and maintaining relationships with host country nationals were positively related to task performance. Although task performance may be more strongly related to work adjustment involving the local unit culture, policies, procedures, operations, and requirement of tasks, non-work adjustments may also spill over into work performance by evoking stress for expatriates (Bhagat, 1983). Previous studies have suggested that maladjustment in a non-work domain influences work performance (Kraimer et al., 2001; Takeuchi, Yun, & Tesluk, 2002; Bhaskar-Shrinivas et al., 2005). In addition, many literature also demonstrated that task performance is greatly impacted by adjustment to the host country (Bhaskar-Shrinivas et al., 2005; Black, 1988; Black & Mendenhall, 1990). Thus, this paper proposes that those who are better adjusted at general life, work, and social interaction will perform better at their tasks.

Proposition 3c: Adjustment will relate positively to task performance.

### 3.4 Moderating Role of Cultural Distance Between CQ and Cultural Adjustment

Cultural distance is defined as the degree to which one nation's culture is similar to or different from the other nation's culture (Shenkar, 2001; Soutar, Lee & Ng, 2006). Cultural distance score reflects the extent of cultural differences on various cultural dimensions between the two different cultural groups.

Among several measures of cultural distance, Kogut and Singh's (1988) cultural index, which uses the differences in scores on Hofstede's (1980) dimensions of national culture, is clearly the most popular approach to measure cultural distance (Agarwal, 1994; Shenkar, 2001; Sousa & Bradley, 2006). In the future study, a composite index of cultural distance along Hofstede's (1980) four cultural dimensions (power distance, uncertainty avoidance, individualism, and masculinity), will be computed based on Kogut and Singh's (1988) formula to examine the proposed model of this study.

Much research also found that the greater the cultural distance between the home and the foreign country, the more difficulties expatriates experience (Caligiuri & Stahl, 2005; Chirkov, Lynch, & Niwa, 2005; Shenkar, 2001; Sousa & Bradley, 2006). In other words, there is a strong positive relationship between the cultural distance

and newcomers' difficulty interacting with the host culture. Shenkar (2001) found that cultural distance increased conflicts and frictions. House et. al. (2004) proposed that cultural distance determined a complexity of cross-national negotiations, mergers, assignments, and leadership. While cultural similarities facilitate communications, harmony, trust, cooperation, and knowledge-sharing, cultural dissimilarities increase communication difficulties, misunderstandings, conflicts, and misinterpretation of a foreigner's intentions (Orr & Levitt, 2004).

Accordingly, the greater the cultural distance between the expatriate's country and the host country, the more essential is the expatriates' CQ in relation to cultural adjustment. Increased cultural distance will require expatriates to possess high levels of CQ for successful adjustment whereas low cultural distance may need less CQ for expatriate adjustment. Thus, this paper proposes that the relationship between CQ and general, work, and interaction adjustment is stronger when the cultural distance between two countries is greater.

Proposition 4: Cultural distance will positively moderate the relationship between CQ and cross-cultural adjustment

### 3.5 Mediating Role of Cultural Adjustment Between CQ and Performance

In addition to directing and moderating the relationships presented in Figure 1, this paper suggests that the relationship between CQ and performance is mediated by cultural adjustment. Although CQ may predict performance directly (Early & Ang, 2003; Earley, Ang & Tan, 2006), placing cultural adjustment as a mediator between CQ and performance is more reliable in explaining why CQ influences expatriate performance due to cultural adjustment. Since CQ refers to an individual's adaptability to new cultural environments (Early & Ang, 2003; Earley, Ang & Tan, 2006), CQ is more likely to correlate with cultural adjustment, rather than to directly relate to expatriate performance. CQ functions as a necessary element, but is not always sufficient for expatriate performance. Thus, this paper proposes that those who have high levels of CQ effectively adjust to new cultural contexts, and accordingly reach higher levels of performance.

Proposition 5: Cultural adjustment mediates the relationship between CQ and expatriate performance.

## IV. Research Method

### 4.1 Sample and Procedure

Data for the study was collected from 182 Korean church members enrolled at a large Korean Presbyterian church in Singapore. Participants indicated that the average length of their international residence was 3.23 years (SD=7.55). Respondents were 45.7% male, with an average of 34.52 years (SD=5.54) from a range of 17 to 57 years old. Participants were asked to list the purpose of staying in Singapore. The purpose of staying in Singapore was divided into international work assignments (61.3%), emigration (30.7%), and others (study, trips, etc.) (8.0%). Most Korean expatriates in the sample were assigned local jobs to fill in positions at branches from Korean global firms while emigrants held a variety of jobs in Singapore.

In order to minimize common method variance, this study collected data at two points in time. At the first round of data collection, 193 participants filled out forms on demographic information including international experience and language skills, Big 5 personality traits, and the 20-item CQ questionnaires. At the second round of data collection (9 weeks later), 182 of these students completed the general mental ability

(IQ), cultural adaptation scale, and the 63-item EQ questionnaires. Since there is only a slight difference between Time 1 (n=193) and Time 2 (n=182), this study assumes that there isn't any potential attribution bias.

#### 4.2 Measures

*Cultural Intelligence.* CQ was measured using the 20 item, four-factor Cultural Intelligence Scale (CQS) developed by Ang and colleagues (2004). The CQS assesses four items for metacognitive CQ ( $\alpha=0.76$ ), six for cognitive CQ ( $\alpha=0.75$ ), five for motivational CQ ( $\alpha=0.81$ ), and five for behavioral CQ ( $\alpha=0.85$ ). These reliabilities are consistent with those presented in Ang et al (2006).

*Cognitive ability.* The Wonderlic Personnel Test (WPT) was used to assess general mental ability of participants. The WPT consists of three areas: vocabulary, arithmetic reasoning, and spatial relations.

*Personality.* Personality was assessed using the five-factor model (FFM) of Big 5 personality. Coefficient alphas for the five factors in the current study are 0.80 for conscientiousness, 0.78 for agreeableness, 0.76 for emotional stability, 0.79 for extraversion, and .82 for openness.

*Emotional Intelligence.* EQ was measured by the Emotional Competence Inventory-University Edition (ECI-U) (Boyatzis, Goleman, & Rhee, 2000; Boyatzis & Goleman, 2002). The ECI includes 4 clusters composed of 21 competencies: self-awareness, self-management, social awareness, and relationship management. In the current study, the reliabilities of the four clusters are 0.80 for self-awareness, 0.79 for self-management, 0.87 for social awareness, and 0.82 for relationship management.

*Language Skills.* In order to measure their language fluency, the respondents were asked their TOEFL (Test of English as a Foreign Language) or TOEIC (Test of English for International Communication) scores on the last page of the questionnaire. Later, TOEIC scores were converted into TOEFL scores based on the TOEFL-TOEIC Conversion Table.

*International Experiences.* To assess international experience, the respondents were asked to list the number of years and months they had lived abroad, either long stays or brief visits.

*Cultural adaptation.* The adjustment scale developed by Black and Stephens (1989) was used. This 14-item scale measures three dimensions of adjustment: general

adjustment ( $\alpha=0.81$ ), work adjustment ( $\alpha=0.78$ ), and interaction adjustment ( $\alpha=0.88$ ).

*Control variables.* This study included age (years), gender (0=female, 1=male), and months of cross-cultural experience as controls.

## V. Results

Confirmatory factor analysis (CFA) demonstrated good fit of the data to a four-factor correlated model of CQS:  $X^2 (164 df) = 543.68$ , Goodness-of-Fit (GFI) = 0.85, Non-Normed Fit Index (NNFI) = 0.92, Comparative Fit Index (CFI) = 0.92, and root mean square of approximation (RMSEA) = 0.069. Table 2 represents CFA of the four factor CQ model, and indicates that all factor loadings are significant. Appendix 1 lists the twenty items in the Cultural Intelligence Scale.

In addition, confirmatory factor analysis (CFA) demonstrated good fit of the data to a four-factor correlated model of ECI (Emotional Competency Inventory):  $X^2 (55 df) = 856.68$ , Goodness-of-Fit (GFI) = 0.90, Non-Normed Fit Index (NNFI) = 0.95, Comparative Fit Index (CFI) = 0.93, and root mean square of approximation (RMSEA) = 0.047.

〈Table 2〉 CFA of 4 Factors of CQS

CQ Factors	Items	Factor Loadings	Cronbach's $\alpha$
Meta cognitive	MC1	.88	.76
	MC2	.85	
	MC3	.73	
	MC4	.80	
Cognitive	COG1	.75	.75
	COG2	.80	
	COG3	.79	
	COG4	.83	
	COG5	.82	
	COG6	.72	
Motivational	MOT1	.85	.81
	MOT2	.79	
	MOT3	.83	
	MOT4	.70	
	MOT5	.77	
Behavioral	BEH1	.77	.85
	BEH2	.78	
	BEH3	.83	
	BEH4	.81	
	BEH5	.79	

This study measured the distinctiveness of the four factors of CQ compared to general mental ability, Big 5 personality, the four factors of emotional intelligence, and the three factors of cultural adaptation by using CFA. Results demonstrated good fit for the thirteen factor model:  $X^2 (1350df) = 2303.47$ , NNFI = .92, CFI = .96, SRMR = .06, RMSEA = .05), supporting the distinc-

tiveness of the four CQ factors relative to cognitive ability, emotional intelligence, cultural adaptation, and personality. All factor loadings were significant, with *t*-values ranging from 9.46 to 31.05.

More specifically, this study measured the distinctiveness of the four factors of CQ compared to the four clusters of EQ by using CFA. CFA demonstrated acceptable fit for the eight-factor model (four factors of CQ + Four factors of EQ):  $\chi^2 (751 df) = 1322.32$ , Goodness-of-Fit (GFI) = 0.898, Non-Normed Fit Index (NNFI) = 0.899, Comparative Fit Index (CFI) = 0.923, and root mean square of approximation (RMSEA) = 0.045. Results supported the distinctive difference between the four CQ factors and the four clusters of EQ.

Descriptive statistics, including reliabilities (coefficient alphas) and correlations among variables, are presented in Table 3. As Table 3 shows, coefficient alphas for all of the multiple-item constructs ranged between 0.75 and 0.88, exceeding the 0.7 cutoff point. The indices suggest acceptable reliability for the multi-item constructs.

In order to examine the relationships between CQ and its antecedents, hierarchical regressions were used as shown in Table 4. In the first step of regression analysis, the two control variables (age, and gender) were entered, with the five antecedent factors (general mental ability, personality, language

skills, emotional intelligence, and international experience) included in the second step.

For the Big Five personality traits as Table 4 shows, openness and extroversions were positively related to total CQ ( $\beta = .30, p < .01$ ,  $\beta = .19, p < .01$ ). More specifically, consciousness was only related to metacognitive CQ. Openness was related to all four factors of CQ ( $\beta = .29, p < .001$ ,  $\beta = .19, p < .01$ ,  $\beta = .25, p < .01$ ,  $\beta = .11, p < .05$ ). Extroversion was related to motivational CQ and behavioral CQ ( $\beta = .18, p < .01$ ,  $\beta = .19, p < .01$ ). Agreeableness was also related to motivational CQ and behavioral CQ ( $\beta = .19, p < .05$ ,  $\beta = .12, p < .05$ ). Finally, stability was related to none of the four factors of CQ.

Regarding emotional intelligence, the last three factors (self-management, social awareness, and relationship management) were positively related to total CQ ( $\beta = .14, p < .05$ ,  $\beta = .19, p < .01$ ,  $\beta = .21, p < .01$ ). The first factor, self-awareness was only related to metacognitive CQ ( $\beta = .15, p < .01$ ). Self-management was positively related to motivational CQ and behavioral CQ ( $\beta = .19, p < .01$ ,  $\beta = .12, p < .01$ ). Social awareness was positively related to metacognitive CQ and behavioral CQ ( $\beta = .19, p < .01$ ,  $\beta = .12, p < .01$ ). Finally, relationship management was related to all four factors of CQ ( $\beta = .18, p < .01$ ,  $\beta = .12, p < .05$ ,  $\beta = .23, p < .001$ ,  $\beta = .14, p < .01$ ).

<Table 3> Descriptive Statistics, Correlations, and Reliabilities (N=182)

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1 General Adjustment	5.32	0.82	(.81)																				
2 Work Adjustment	6.19	0.73	.43**	(.78)																			
3 Interaction Adjustment	5.62	0.63	.59**	.40**	(.88)																		
4 Metacognitive CQ	3.98	0.62	.23*	.31*	.15	(.76)																	
5 Cognitive CQ	4.35	0.76	.14	.36**	.24*	.47**	(.75)																
6 Motivational CQ	5.20	0.65	.39**	.40**	.44**	.35**	.28**	(.81)															
7 Behavioral CQ	4.92	0.71	.22**	.31*	.40**	.49**	.43**	.51**	(.85)														
8 General Mental Ability	27.55	3.23	.04	.05	-.01	.04	.03	-.02	.09	-													
9 EI: Self-Awareness	3.56	0.89	.16*	.14*	.03	.30**	.19*	.25**	.30**	.003	(.80)												
10 EI: Self-Management	3.77	0.69	.20**	.23**	.18**	.34**	.20**	.22**	.34**	.15*	.53**	(.79)											
11 EI: Social-Awareness	3.70	0.59	.18*	.09	.29**	.18*	.34**	.13*	.23**	-.05	.65**	.58**	(.87)										
12 EI: Relationship Management	3.65	0.58	.19*	.24**	.32**	.23**	.30**	.30**	.31**	.11	.49**	.59**	.48**	(.82)									
13 FFM: Conscientiousness	3.75	0.53	.15*	.23**	.09	.23**	.18*	.19*	.13*	.02	.27**	.22**	.32**	.38**	(.80)								
14 FFM: Openness	3.40	0.65	.23**	.12*	.32**	.30**	.29**	.27**	.20**	.05	.33**	.23**	.14	.22**	.05	(.82)							
15 FFM: Extraversion	3.69	0.47	.30**	.19**	.30**	.19**	0.06	.08	.19**	.09	.35**	.30**	.35**	.33**	.34**	.12	(.79)						
16 FFM: Agreeableness	3.44	0.50	.31**	.07	.31**	.19*	.03	.12	.04	.01	.24**	.25**	.10	.29**	.28**	.09	.23**	(.78)					
17 FFM: Stability	3.32	0.49	.12*	.03	.12	.19**	.12	.13	.18	.03	.21**	.22**	.27**	.12*	.33**	.08	.05	.30**	(.76)				
18 Language Ability	212.5	32.89	.12*	.32**	.29**	.18*	.32**	.22**	.12*	.22**	.07	.19*	.09	-.01	.12*	.01	.23**	.19**	.12*	-			
19 International Experience	3.23	7.55	.12	.22**	.23**	.22**	.29**	.35**	.30**	-.10	.15*	.12	.09	.05	.05	.09	-.02	.20**	.07	-			
20 Age	34.52	14.55	.05	-.02	.03	.07	.03	.09	.08	.03	-.02	-.01	.02	.04	.00	.10	-.12	-.07	-.22*	.02	-.08	-	
21 Gender	0.45	0.50	0.1	-.02	-.06	.05	-.03	.03	.09	.07	-.1	.19**	.06	.09	-.15	-.09	.17*	-.09	-.12*	.12**	.17	.02	-

Note. \* $p < .05$ , \*\* $p < .01$  Gender (0=female, 1=male)  
CQ=cultural intelligence, FFM=Five Factor Model of Personality, Cronbach's alpha in parentheses

〈Table 4〉 Hierarchy Regression Analysis of Antecedents on CQ (n=182)

Variable	Total CQ		Metacognitive CQ		Cognitive CQ		Motivational CQ		Behavioral CQ	
	Step1	Step2	Step1	Step2	Step1	Step2	Step1	Step2	Step1	Step2
Age	.03	.05	.09	.03	.08	.01	.09	.03	.02	.09
Gender	-.01	-.02	-.07	-.03	-.03	-.09	.05	.02	-.01	-.05
FFM: Consciousness		.12		.17*		.08		.01		.09
FFM: Openness		.30**		.29***		.19**		.25**		.11*
FFM: Extroversion		.19**		.05		.03		.18**		.19**
FFM: Agreeableness		.11		.04		.09		.19*		.12*
FFM: Stability		.02		-.02		-.08		.07		.06
EI: Self-awareness		.07		.15**		.07		.04		-.01
EI: Self-management		.14*		.03		.02		.19**		.12**
EI: Social awareness		.19**		.19**		.05		.04		.18**
EI: Relationship management		.21**		.18**		.12*		.23***		.14**
General mental ability		.01		.02		.03		-.03		-.01
Language ability		.17**		.20**		.07		.24**		.13*
International experience		.18**		.16**		.12		.10		.18**
<i>F</i>	1.46	6.93***	1.83	5.70***	1.40	4.49**	1.64	4.21**	1.22	5.57**
$\Delta F$		8.69***		7.39***		5.31***		4.98**		5.67***
$R^2$	.04	.43	.01	.36	.01	.21	.04	.37	.00	.39
$\Delta R^2$		.39		.35		.20		.33		.39
Adjusted $R^2$	.02	.29	-.00	.15	.00	.18	.01	.32	.00	.35

Note. \* $p < .05$ ., \*\* $p < .01$ ., \*\*\* $p < .001$

Gender (0=female, 1=male), International experience (months of cross-cultural experience)

Regression results demonstrated that General mental ability was related to none of the CQ factors. Language ability was positively related to total CQ, metacognitive CQ, motivational CQ, and behavioral CQ. ( $\beta = .17, p < .01, \beta = .20, p < .01, \beta = .24, p < .001, \beta = .13, p < .05$ ). Finally, international experience was positively related to total CQ, meta-cognitive CQ, and behavioral CQ ( $\beta = .18, p < .01, \beta = .16, p < .01, \beta = .18, p$

$< .01$ ).

Table 5 summarizes regression results. The incremental validity of CQ was tested by hierarchical regression analyses. For control variables, age, and sex (0 = female, 1 = male) were entered in the first step, In the second step, personality, general mental ability, emotional intelligence, language ability, and international experiences were entered in the second step. In the third

<Table 5> Hierarchy Regression Analysis of Cultural Adaptation (n=182)

Variable	General adjustment			Work adjustment			Interaction adjustment		
	Step1	Step2	Step3	Step1	Step2	Step3	Step1	Step2	Step3
Age	.15	.16	.07	.09	.11	.04	.08	.05	.02
Gender	-.12	-.14	-.03	-.02	-.01	-.02	-.03	-.04	-.02
Personality		.12*	.06		.05	.11		.23***	.15**
Emotional intelligence		.29**	.17**		.16*	.12*		.27**	.18**
General mental ability		.09	.03		.04	.08		.06	.04
Language ability		.17**	.13*		.06	.11		.20**	.14**
International experience		.10	.04		.21**	.16*		.03	.01
Metacognitive CQ			.09			.12**			.05
Cognitive CQ			.06			.05			.07
Motivational CQ			.11**			.23**			.15***
Behavioral CQ			.14*			.10*			.12**
F	1.43	8.99***	9.32***	1.63	7.95***	9.14***	1.04**	9.21***	11.06***
$\Delta F$		12.20	4.97		11.67	6.48		12.83	7.64
R <sup>2</sup>	.04	.16	.21	.03	.09	.12	.02	.19	.24
$\Delta R^2$		.12	.05		.06	.03		.17	.05
Adjusted R <sup>2</sup>	.03	.14	.19	.02	.08	.10	.04	.17	.22

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Gender (0=female, 1=male), International experience (months of cross-cultural experiences)

step, the four factors of CQ were entered. By assessing Change-F statistics in each regression step, this study found that adding CQ in the third step increased explained variances for general adjustment by 5% (adjusted  $R^2=.19$ ), work adjustment by 3% (adjusted  $R^2=.10$ ), and interaction adjustment by 5% (adjusted  $R^2=.22$ ).

Confirmatory factor analysis (CFA) showed good fit of a three factor model of cultural adjustment scale,  $\chi^2(98df)=237.14$ , NNFI = .92, CFI = .936, SRMR = .047, and RMSEA = .063. To identify the dimensions of cross-cultural adjustment, principal components factor analysis with varimax rotation identified three factors with eigenvalues greater than 1.0 and item loadings higher than .35 on the relevant factors. The solution accounted for 59.5% of the total variance.

For general adjustment, regression results demonstrated that motivational CQ ( $\beta = .11, p < .01$ ) and behavioral CQ ( $\beta = .14, p < .05$ ) increased explained variance, over and above demographic characteristics, personality, general mental ability, emotional intelligence, language ability, and international experience. Regression results for work adjustment showed that metacognitive CQ ( $\beta = .12, p < .01$ ), motivational CQ ( $\beta = .23, p < .01$ ) and behavioral CQ ( $\beta = .10, p < .05$ ) increased explained variance, above and beyond the other variables. Finally, regression results for interaction adjustment

demonstrated that motivational CQ ( $\beta = .15, p < .001$ ) and behavioral CQ ( $\beta = .12, p < .01$ ) increased explained variance above and beyond the other variables.

Finally, the Harman factor analysis was conducted by using exploratory component analysis of all items to examine whether common method variance existed. Nineteen factors emerged with eigenvalues greater than 1, and the first factor accounted for 18.69% of the variance. Cumulative variance of the seventeen factors was 52.81% of the total variance, and no one single factor accounted for more than 25%, an indication that common method bias was minimized.

## VI. Discussion

The primary goal of this research was to empirically examine the relationship between CQ and its antecedents (personality, IQ, emotional intelligence, international experience, and language ability), and provide a conceptual model of how CQ impacts the cross-cultural adaptation and assignment performance of expatriates. Although **previous** studies **have** demonstrated the effects of antecedents on CQ, and predictive validity of CQ over cultural adaptation, task performance, and cultural judgement decision making respectively (Ang & Tan, 2006;

Ang et al., 2006; Ang et al., 2007; NG & Earley, 2006; Templer, Tay & Chandrasekar, 2006), this study attempts to provide a more integrative approach of a theoretical model with its related empirical findings that would allow us to obtain a better understanding of the nature and implications of CQ.

The results of empirical findings provided several crucial conclusions. First, the results of this study with 182 Korean respondents further increased the generalizability of the Cultural Intelligence Scale (CQS) across countries, which had been supported by conducting previous studies only in Singapore and the United States. Correspondingly, this study confirmed reliability and construct validity regarding the four factor model of CQS. Second, the findings of this study demonstrated strong support for the distinctiveness and discriminant validity of the CQ construct compared with the EQ construct, which were consistent with the findings of previous studies (Ang et al., 2004; Ang et al., 2007). Third, analyses of the findings indicated that each of the four factors of CQ was influenced in a different manner by the other variables such as personality, emotional intelligence, language ability, and international experience to varying degrees. Although general mental ability (IQ) was expected to relate to CQ, especially metacognitive and cognitive CQ,

none of the four CQ factors were related to general mental ability. A possible reason for this unanticipated result might be related to the nature of IQ, which is not specific to certain contexts, such as cross-cultural interactions, and does not involve motivational and behavioral aspects of CQ. Finally, the results supported one of the propositions that CQ is positively related to cultural adaptation. Moreover, the results supported predictive and incremental validity that CQ increased explained variance of cultural adaptation, over and above demographic characteristics, personality, general mental ability, emotional intelligence, language ability, and international experience.

### 6.1 Implications for Research and Practice

This study proposes a nomological network for the CQ model that helps to understand the role of cultural intelligence, and the underlying mechanism of the relationship between CQ and expatriate performance as well as cultural adaptation. Although previous expatriate literature has examined the mediator effect of adjustment on the relationship between various predictors and actual success (Bhaskar-Shrinivas et al., 2005; Kraimer, Wayne, & Jaworski, 2001); these predictors seldom involved individual differences. Thus, this study can contribute to cross-cultural studies by exploring how

individual difference like CQ impacts cultural adaptation, and promotes expatriate performance in cross-cultural environments.

Another theoretical implication of this study is the involvement of cultural distance as a moderator in the relationship between CQ and cultural adaptation. Although cultural distance has been applied to the sequence of foreign investment (Benito & Gripsrud, 1992), entry mode choice (Agarwal, 1994), control over export channels (Bello & Gilliland, 1997), firm performance (Evans & Mavondo, 2002), and the performance of foreign invested affiliates among others (Shenkar, 2001), **most** studies have examined only the main effects of cultural distance at the **national** level, but do not consider its moderating effects at the individual level (Kirkman et al., 2006). Thus, a theoretical model of this study considers the moderating effect of cultural distance at the individual level by arguing that CQ plays a more reduced role in cross-cultural adaptation when the cultural distance between home and host country is smaller, since expatriates share more common values and norms with host country.

Finally, as recent research studies on CQ have suggested, the findings of this study support the assessment that CQ entails capabilities that can be developed through international experience and intercultural training, such as the development of language

skills. Unlike personality or IQ that is inherited and resistant to change, CQ can be developed and learned over time through more international experiences and adequate training (Earley & Ang, 2003; Earley, Ang, & Tan, 2006). Intercultural competence research has classified antecedents of individual difference from demographic variables such as personality traits, a state-like capability (IQ, emotional intelligence, social intelligence, and language skills), and previous experience to situational variables (cultural distance, predeparture training, the nature of the task, job role, and family adjustment) (Dinges & Baldwin, 1996; Ng & Earley, 2006). Having chosen from numerous variables, this paper focuses on demographic variables such as personality traits, language skills, IQ, emotional intelligence, and international experience as antecedents of CQ.

On a practical level, this study has implications for cross-cultural management operation. For example, this study would help human resource professionals in their efforts towards selection, training and developing a more culturally competent workforce. By providing an integrative model of CQ, this study allows organizations to improve their staffing and performance system. They will recognize the importance of cultural intelligence besides evaluating employees' language skills, international work experience,

and diversified social contacts when an HR department in an organization recruits or selects its employees for work in cross-cultural settings.

In addition, organizations could use the CQS to recruit and select their employees who would be the best fit for expatriate assignments since previous studies and this study supported strong psychometric characteristics of the CQS. By using CQS, those who perform well in domestic contexts but are unlikely to succeed in cross-cultural interactions could be screened out, which eventually would reduce unnecessary costs stemming from the failure of international assignments.

## 6.2 Limitations and Future Research

This study also has limitations that offer prime opportunities for future research. First, future study should empirically examine a theoretical model of this study in order to see how CQ impacts cultural adaptation and performance, and is moderated by cultural distance in cross-cultural adjustment. Second, future studies need a more extended model of CQ, which includes other indicators of international assignment outcomes such as job satisfaction, subjective well being, premature return intention, cultural judgement decision making, communication effectiveness, organization commitment,

adaptive performance, and multi-cultural team functioning. Third, a theoretical model offered by this paper did not include the effects of family adjustment on expatriate adjustment and performance. The issue of spouse or children adjustment in cross-cultural interactions should be examined in future research since the adaptation of spouse and children can have spill over effects on expatriates' adjustment and performance by causing psychological strain (Takeuchi, Wang, & Marinova, 2005). Finally, common method bias may be a concern since both predictor and criterion variables are from the same source in this study. Future study should be more concerned about common method variance. Although this study collected self-reported data at two different points of time, and a Harman one-factor test was conducted, all of the sample data comes from the same resource. While a perfect removal of CMB seems impossible, it can be controlled and detected through careful research design and instruments (Park et al., 2007; Podsakoff et al., 2003). The best way to control CMB is to use a different measurement method for each variable, such as the multitrait-multimethod (MTMM) (Park et al., 2007; Podsakoff et al., 2003; Spector, 1994). If it is impossible to gain multiple measures of the variables from multiple methods, researchers must obtain predictor and criterion

variables from different sources (Podsakoff & Organ 1986). Future study should gather data from multiple sources by using peer-rated CQ as well as self-reported CQ (e.g. using matched data from oneself and his or her friends, colleagues or spouse).

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## 〈Appendix 1〉 Cultural Intelligence Scale (CQS)

Read each statement and select the response that best describes your capabilities.

Select the answer that BEST describes you AS YOU REALLY ARE

(1=strongly disagree; 7=strongly agree)

CQ Factor	Questionnaire Items	Score
MC1	I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.	
MC2	I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.	
MC3	I am conscious of the cultural knowledge I apply to cross-cultural interactions.	
MC4	I check the accuracy of my cultural knowledge as I interact with people from different cultures.	
COG1	I know the legal and economic systems of other cultures.	
COG2	I know the rules (e.g., vocabulary, grammar) of other languages.	
COG3	I know the cultural values and religious beliefs of other cultures.	
COG4	I know the marriage systems of other cultures.	
COG5	I know the arts and crafts of other cultures.	
COG6	I know the rules for expressing non-verbal behaviors in other cultures.	
MOT1	I enjoy interacting with people from different cultures.	
MOT2	I am confident that I can socialize with locals in a culture that is unfamiliar to me.	
MOT3	I am sure I can deal with the stresses of adjusting to a culture that is new to me.	
MOT4	I enjoy living in cultures that are unfamiliar to me.	
MOT5	I am confident that I can get accustomed to the shopping conditions in a different culture.	
BEH1	I change my verbal behavior (e.g., accent, tone) when a cross-cultural interaction requires it.	
BEH2	I use pause and silence differently to suit different cross-cultural situations.	
BEH3	I vary the rate of my speaking when a cross-cultural situation requires it.	
BEH4	I change my non-verbal behavior when a cross-cultural situation requires it.	
BEH5	I alter my facial expressions when a cross-cultural interaction requires it.	

## Toward A Comprehensive Model of Cultural Intelligence: Antecedents, Cultural Adaptation, and Performance Outcomes

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### Abstract

This paper introduced the concept of cultural intelligence (CQ), and demonstrated validation of the 20-item, four-factor Cultural Intelligence Scale (CQS), which was developed by Ang et al. (2004). Consistent with Schmidt and Hunter's (2000) definition of general intelligence as the capability to read and understand concepts accurately and engage in problem solving, CQ is defined as the capability to function effectively in culturally diverse environments (Earley & Ang, 2003; Earley, Ang & Tan, 2006; Ang et al., 2006; Ang et al., 2007). CQ is composed of the four fundamental components: meta-cognitive facet, cognitive facet, motivational facet, and behavioral facet. Confirmatory factor analysis (CFA) demonstrated good fit of the data to a four-factor correlated model:  $X^2 (164 df) = 543.68$ , Goodness-of-Fit (GFI) = 0.85, Non-Normed Fit Index (NNFI) = 0.92, Comparative Fit Index (CFI) = 0.92, and root mean square of approximation (RMSEA) = 0.069. These results were consistent with previous results of Ang and colleagues (2004) and provided additional support for the validation of the four-factor model of CQ.

This study empirically examined the relationship between CQ and its antecedents (personality, IQ, emotional intelligence, international experience, and language ability). Data for the study were collected from 182 Korean church members who attended a large Korean Presbyterian church in Singapore. Analyses of the empirical findings showed that all four factors of CQ (metacognitive CQ, cognitive CQ, motivational CQ and behavioral CQ) were influenced by the other variables such as personality, emotional intelligence, language ability, and international experience in varying degrees of significance.

For Big Five personality, openness and extroversion were positively related to total CQ.

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More specifically, consciousness was only related to metacognitive CQ while openness was related to all four factors of CQ. Extroversion was related to motivational CQ and behavioral CQ while agreeableness was also related to motivational CQ and behavioral CQ. Stability was related to none of the four factors of CQ.

Regarding emotional intelligence, three factors were positively related to total CQ: self-management, social awareness, and relationship management. Self-awareness was only related to metacognitive CQ, self-management was positively related to motivational CQ and behavioral CQ. Social awareness was positively related to metacognitive CQ and behavioral CQ. Finally, relationship management was related to all four factors of CQ.

Regression results demonstrated that general mental ability was related to none of the CQ factors. Language ability was positively related to total CQ, metacognitive CQ, motivational CQ, and behavioral CQ whereas international experience was positively related to total CQ, meta-cognitive CQ, and behavioral CQ).

The empirical findings also supported an incremental and predictive validity that CQ increased explained variance of cultural adaptation (general adjustment, work adjustment, and interaction adjustment), over and above demographic characteristics, personality, general mental ability, emotional intelligence, language ability, and international experience. For general adjustment, regression results demonstrated that motivational CQ and behavioral CQ increased explained variance, over and above demographic characteristics, personality, general mental ability, emotional intelligence, language ability, and international experience. Regression results for work adjustment showed that metacognitive CQ, motivational CQ, and behavioral CQ increased explained variance, above and beyond the other variables. Finally, regression results for interaction adjustment demonstrated that motivational CQ and behavioral CQ increased explained variance above and beyond the other variables.

Based on these empirical results, this study proposed a theoretical model of CQ that explored how CQ impacts the cross-cultural adaptation and assignment performance of expatriates, and discussed possible direction for future research. Due to the novelty of the CQ construct, few theoretical or empirical studies address how CQ influences expatriate adjustment and performance effectiveness during international assignments. Thus, this study proposes a concrete model that places CQ in a nomological network of relevant antecedents, moderator, and consequences. This study predicts that individuals with high CQ are more likely to perform and adjust better in cross-cultural contexts. Thus, CQ functions as a causal factor or facilitator of outcomes such as adjustment and effective performance in cross-

cultural environments.

This study offered five propositions by providing an integrative approach of a theoretical model of CQ. First, this study proposed that CQ would relate positively to expatriate performance such as intercultural leadership, cultural judgement and decision making (CJDM) effectiveness, and task performance. Second, this study proposed that CQ would relate positively to cultural adjustment when examining general adjustment, work adjustment, and interaction adjustment. Third, this study proposed that cultural adaptation would relate positively to expatriate performance such as intercultural leadership, cultural judgement and decision making (CJDM) effectiveness, and task performance. Fourth, this study proposed that cultural distance would positively moderate the relationship between CQ and cross-cultural adjustment. Finally, this study proposed that cultural adjustment would mediate the relationship between CQ and expatriate performance.

In sum, with the empirical results of antecedents on CQ, this study proposed a nomological network of CQ model that helps to understand the role of cultural intelligence, and the underlying mechanism of the relationship between CQ and expatriate performance as well as cultural adaptation. On a practical level, this study has implications for cross-cultural management operations. For example, this study would help human resource professionals in their efforts towards selecting, training and developing a more culturally competent workforce. By providing an integrative model of CQ, this study allows organizations to improve their staffing and performance system.

Key words: cultural intelligence, antecedents, cultural adaptation, expatriate performance