CHAPTER 29

Cultural Intelligence

Soon Ang, Linn Van Dyne, and Mei Ling Tan

1.0 Introduction and Historical Background

Earley and Ang introduced the concept of cultural intelligence in their Stanford University Press book published in 2003. Cultural intelligence refers to an individual's capability to function effectively in situations characterized by cultural diversity (Ang & Van Dyne, 2008; Earley & Ang, 2003).

Cultural intelligence was conceived at the turn of the 21st century, when the world was experiencing unprecedented globalization and interconnectedness. Advanced communication and transportation technologies have made traveling to and sojourning in foreign soils more affordable and accessible. Cultural intelligence (CQ) was also conceived at a time in which ideological clashes and cultural conflict culminated in the tragic events of September 11, 2001. Nobel Prize laureate Elie Wiesel identified "cultural hatred" – hatred directed toward culturally different individuals – as *the* major source of problems between people, across all times. The *Los Angeles Times* estimates that there are over 50 hot spots in the world where cultural conflicts occur every day. Cultural wars in Serbia, Croatia, Bosnia, Rwanda, Burundi, Angola, and Afghanistan have plagued the globe. Thus, although globalization may lead some to regard the world as "flat," cultural hatred is a major destabilizing factor in the contemporary world. Although technology is often a force for convergence, deep-seated cultural differences and cultural diversity present critical challenges to people all over the world. In sum, globalization increases intercultural interactions and also increases the probability of cultural misunderstandings, tensions, and conflicts.

The driving question behind the idea of cultural intelligence is, *Why do some but not other individuals easily and effectively adapt their views and behaviors cross-culturally?* (Van Dyne, Ang, & Livermore, 2010). This question has long interested researchers across diverse disciplines in psychology, sociology, management, health care, military, education, and other fields. Thus, it is not surprising that a wide array of frameworks and intercultural instruments (see

Paige, 2004, for a comprehensive review) purport to assess cultural competencies.

Nevertheless, Gelfand, Imai, and Fehr (2008) described the existing cultural-competency literature as lacking a coherent theoretical foundation and confusing because it often mixes ability and nonability characteristics. In their words, the literature on cultural competency can best be characterized as suffering from the "jingle and jangle fallacy – where constructs with the same meaning are labeled differently while constructs with different meanings are labeled similarly" (p. 375). Because there is no overarching theoretical framework to tie the numerous cultural competency constructs together and there is little consensus on operationalizations, questions of construct validity arise and compromise the practical utility of the concept.

It is within this context that the concept of cultural intelligence (CQ) was formulated. Drawing on the theory of multiple loci of intelligence (Sternberg & Detterman 1986), Earley and Ang (2003) conceptualized cultural intelligence as a set of four capabilities – based specifically on the theory of multiple loci of intelligence. Accordingly, CQ is a "cleaner" construct that assesses multiple aspects of intercultural competence based on a theoretically grounded, comprehensive, and coherent framework.

Since 2003, the concept of cultural intelligence has attracted significant attention worldwide and across diverse disciplines. Despite being relatively new, the concept has been cited in over 60 journals in disciplines as diverse as applied, cognitive, and social psychology; mental health; international business; management; organizational behavior; human resources; human relations; industrial relations; intercultural relations; sociology; education; communications; knowledge management; decision sciences; information science; the military; architecture; economics; and engineering.

This chapter provides an overview of research on cultural intelligence, the nomological network of cultural intelligence, and future directions for research on cultural intelligence. We aim to help readers think more deeply about their own cultural intelligence capabilities. We also aim to stimulate additional theorizing, empirical research, and practical application in diverse countries and cultures across the globe.

2.0 The Four-Factor Model of Cultural Intelligence

2.1 Conceptualization of CQ

Although early research tended to view intelligence narrowly as the ability to grasp concepts and solve problems in academic settings, there is now a consensus that intelligence applies beyond the classroom. The growing interest in "real-world" intelligence has identified new types of nonacademic intelligences (Sternberg, 1997) that focus on specific content domains such as social intelligence (Thorndike & Stein, 1937), emotional intelligence (Mayer & Salovey, 1993), and practical intelligence (Sternberg & Wagner, 2000).

Cultural intelligence builds upon some of these same ideas but instead focuses on a specific domain – intercultural settings – and is motivated by the practical reality of globalization (Earley & Ang, 2003). Just as EQ (emotional intelligence) complements IQ (cognitive intelligence) as important for work effectiveness and high-quality interpersonal relationships in this increasingly interdependent world (Earley & Gibson, 2002), cultural intelligence is another complementary form of intelligence that can explain variability in coping with diversity and functioning in new cultural settings. Since the norms for social interaction vary from culture to culture, it is unlikely that cognitive intelligence, emotional intelligence, or social intelligence will translate automatically into effective cross-cultural adjustment, interaction, and effectiveness.

CULTURAL INTELLIGENCE AS A
MULTIDIMENSIONAL CONSTRUCT
Earley and Ang (2003) built on the increasing consensus that intelligence should go beyond mere cognitive abilities. They drew on Sternberg and Detterman's (1986)

integration of the myriad views of intelligence as comprising four complementary ways of conceptualizing individual-level intelligence: metacognitive, cognitive, motivational, and behavioral.

Sternberg and Detterman's framework is noteworthy because it proposes intelligence as having different "loci" within the person – metacognition, cognition, and motivation are mental capabilities that reside within the "head" of the person, while overt actions are behavioral capabilities. Metacognitive intelligence refers to the control of cognition – the processes individuals use to acquire and understand knowledge. Cognitive intelligence refers to a person's knowledge structures and is consistent with Ackerman's (1996) intelligence-as-knowledge concept, which similarly argues for the importance of knowledge as part of a person's intellect. Motivational intelligence refers to the mental capacity to direct and sustain energy on a particular task or situation. The concept of motivational intelligence is based on contemporary views that motivational capabilities are critical to "real-world" problem solving. Without motivation, cognition such as problem solving, reasoning, or decision making may not even be activated. Therefore, it is useless to focus simply on cognition and ignore the motivation aspect of intelligence (e.g., Ceci, 1996). Behavioral intelligence refers to outward manifestations or overt actions – what the person does rather than what he or she thinks (Sternberg, 1986). Hence, metacognitive, cognitive, and motivational intelligence involve mental functioning, and behavioral intelligence is the capability to display actual behaviors. In parallel fashion, Earley and Ang (2003) described cultural intelligence as a complex, multifactor individual attribute that is composed of metacognitive, cognitive, motivational, and behavioral factors.

Metacognitive CQ. This aspect of CQ refers to an individual's level of conscious cultural awareness during cross-cultural interactions. Metacognitive cultural intelligence involves higher level cognitive strategies – strategies that allow individuals to develop new heuristics and rules for social interaction in novel cultural environments by promoting information processing at a deeper level.

People with high metacognitive CQ consciously question their own cultural assumptions, reflect during interactions, and adjust their cultural knowledge when they interact with those from other cultures. For example, a Western business executive with high metacognitive CQ would be aware, vigilant, and mindful about the appropriate time to speak up during meetings with Asians. Those with high metacognitive CQ would typically observe interactions and the communication style of their Asian counterparts (such as turn-taking) and think about what is appropriate before speaking up.

The metacognitive factor of CQ is a critical component of cultural intelligence because it promotes active thinking about people and situations in different cultural settings, triggers active challenges to rigid reliance on culturally bounded thinking and assumptions, and drives individuals to adapt and revise their strategies so that they are more culturally appropriate and more likely to achieve desired outcomes in cross-cultural encounters.

Cognitive CQ. While metacognitive CQ focuses on higher order cognitive processes, cognitive CQ reflects knowledge of norms, practices, and conventions in different cultures acquired from education and personal experiences. Cognitive CQ includes knowledge of cultural universals as well as knowledge of cultural differences. It is an individual's level of cultural knowledge, knowledge of the cultural environment, and knowledge of self as embedded in the cultural context of the environment. Traditional approaches to intercultural competency typically emphasize cognitive CQ. While valuable, the knowledge that comes from cognitive CQ must be combined with the other three factors of CQ or its relevance to the real demands of leadership is questionable and potentially detrimental.

Cultural norms and values are the varying ways cultures approach things like time, authority, and relationships. Thus, understanding how a family system works

becomes critically relevant when developing human-resource policies for employees from cultures in which employees are expected to care for senior members of their extended family. Likewise, the value a culture places upon time and relationships becomes highly germane when an American is trying to get a contract signed with a potential affiliate in China or Brazil or Saudi Arabia or Spain, where norms for time differ from those in Western settings.

The cognitive factor of CQ is a critical component of cultural intelligence because knowledge of culture influences people's thoughts and behaviors. By understanding a society's culture and the components of culture, individuals gain a better understanding of the systems that shape and cause patterns of social interaction within a culture. Consequently, those with high cognitive CQ are less disoriented when interacting with people from different societies.

Motivational CQ. Motivational CQ reflects the capability to direct attention and energy toward learning about and functioning in culturally diverse situations. Kanfer and Heggestad (1997, p. 39) argued that such motivational capacities "provide agentic control of affect, cognition and behavior that facilitate goal accomplishment." According to the expectancy-value theory of motivation (Eccles & Wigfield, 2002), the direction and magnitude of energy channeled toward a particular task involve two elements – the expectation of successfully accomplishing the task and the value associated with accomplishing the task. Those with high motivational CQ direct attention and energy toward cross-cultural situations based on intrinsic interest (Deci & Ryan, 1985) and confidence in cross-cultural effectiveness (Bandura, 2002).

Motivational CQ is a critical component of cultural intelligence because it is a source of drive. It triggers effort and energy directed toward functioning in novel cultural settings. For example, a Chinese executive who has a good command of Japanese and likes interacting with those from other cultures would not hesitate to initiate a conversation with a fellow colleague from Japan.

In contrast, another Chinese executive who is just learning Japanese or dislikes cross-cultural encounters would be more reticent to engage in such a cross-cultural interaction.

Behavioral CQ. Finally, behavioral CQ reflects an individual's capability to exhibit appropriate verbal and nonverbal actions when interacting with people from different cultures. Behavioral CQ is a critical component of CQ because actions are the most salient features of social interactions. As Hall (1959) emphasized, mental capabilities for cultural understanding and motivation must be complemented with the ability to exhibit appropriate verbal and nonverbal actions, based on cultural values of a specific setting. When individuals initiate and maintain face-to-face interactions, they do not have access to each other's latent thoughts, feelings, or motivation. Yet, they can rely on what they see and hear in the other person's verbal, vocal, facial, and other bodily expressions.

The behavioral factor of CQ includes the capability to be flexible in verbal and nonverbal actions. It also includes appropriate flexibility in speech acts – the exact words and phrases used when communicating specific messages. While the demands of intercultural settings make it impossible for anyone to master all the etiquettes and the dos and don'ts of various cultures, individuals should modify certain behaviors when interacting with different cultures. For example, Westerners need to learn the importance of carefully studying business cards presented by those from most Asian contexts. In sum, almost every approach to cross-cultural work has insisted on the importance of flexibility. Behavioral CQ provides a way of exploring how to enhance this flexibility.

2.2 Conceptual Distinctiveness of Cultural Intelligence

To further clarify the nature of CQ, we need to describe what CQ is not. Specifically, we discuss the differences and similarities of CQ compared to personality, cognitive ability, and emotional intelligence.

CQ AND PERSONALITY

CQ is a set of abilities or individual capabilities. Abilities are those personal characteristics that relate to the capability to perform the behavior of interest. As such, CQ is clearly different from personality traits, which are nonability individual differences. CQ focuses on culturally relevant capabilities. Thus, it is more specific than personality or general cognitive ability. Note, however, that CQ is not specific to a particular culture. Instead, CQ is specific to particular types of situations (culturally diverse), and it is not culture-specific.

It is also critical to note that CQ is malleable and can be enhanced through experience, education, and training. While personality is a relatively stable, trait-like individual difference, CQ is more of a state-like individual difference that can evolve over time.

CQ IN RELATION TO OTHER
INTELLIGENCE CONSTRUCTS

CQ is similar to general cognitive ability (e.g., Schmidt & Hunter, 1998) and emotional intelligence (Mayer & Salovey, 1993) because it deals with a set of abilities. CQ differs, however, from the two other intelligences in the nature of the ability examined. General cognitive ability, the ability to learn, predicts performance across many jobs and settings, but it is not specific to certain contexts – such as culturally diverse situations. In addition, it does not include behavioral or motivational aspects of intelligence. Emotional intelligence (EQ) is the ability to deal with personal emotions. Thus, it is similar to CQ because it goes beyond academic and mental intelligence, but it differs from CQ because it focuses on the general ability to perceive and manage emotions without consideration of cultural context. Given that emotional cues are symbolically constructed within a culture, emotional intelligence in the home culture does not automatically transfer to unfamiliar cultures (Earley & Ang, 2003). Thus, EQ is culture-bound and a person who has high EQ in one cultural context may not be emotionally intelligent in another culture. In contrast, CQ is not culture-specific and refers to a general set of capabilities with relevance to situations characterized by cultural diversity.

2.3 Measurement of Cultural Intelligence – the Cultural Intelligence Scale (CQS)

Ang and associates (2007) and Van Dyne, Ang, and Koh (2008) initiated a series of studies to develop, validate, and cross-validate (N > 1500) the first Cultural Intelligence Scale – the 20-item CQS. Below, we describe development, validation, and cross-validation of the CQS. First, 53 items (13–14 items per CQ dimension) were generated for the initial item pool. These items were assessed for clarity, readability, and definitional fidelity, and the 10 best items for each dimension were retained (40 items). In Study 1, business school undergraduates in Singapore (N = 576) completed the 40 items. Based on a comprehensive series of specification searches, we deleted items with high residuals, low factor loadings, small standard deviations or extreme means, and low item-to-total correlations. We retained the 20 items with the strongest psychometric properties as the CQS: four metacognitive CQ, six cognitive CQ, five motivational CQ, and five behavioral CQ. Figure 29.1 lists the 20 items in the CQS. Confirmatory factor analysis (CFA) (LISREL 8: maximum likelihood estimation and correlated factors) demonstrated good fit of the hypothesized four-factor model to the data.

We next cross-validated the CQS across samples, time, countries, and methods (Studies 2, 3, 4, and 5, respectively). In Study 2, a second, nonoverlapping sample of undergraduate students in Singapore (N = 447) completed the CQS. CFA confirmed the four-factor structure in this cross-validation sample. In Study 3, a subset of respondents in Study 2 completed the CQS again four months later. We used these data to assess temporal stability of the CQS; results provided evidence of test-retest reliability. In Study 4, a sample of undergraduates (N = 337) at a large school in the Midwestern United States completed the CQS. Multiple group tests of invariance using structural equation modeling demonstrated

Figure 29.1 Cultural Intelligence Scale (CQS) – Self-Report.[a] 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*
Metacognitive CQ	
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.
Cognitive CQ	
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 nonverbal behaviors in other cultures.
Motivational CQ	
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.
Behavioral CQ	
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 nonverbal behavior when a cross-cultural situation requires it.
BEH5	I alter my facial expressions when a cross-cultural interaction requires it.

[a] Copyright ©Cultural Intelligence Center, LLC 2005–2010. Used by permission of the Cultural Intelligence Center, LLC.

Note. Use of this scale is granted to academic researchers for research purposes only. For information on using the scale for purposes other than academic research (e.g., consultants and nonacademic organizations), please send an email to cquery@culturalq.com.

The citation for this scale is
Ang, S., Van Dyne, L., Koh, C., Ng, K. Y., Templer, K., Tay, C., & Chandrasekar, N. A. (2007). Cultural intelligence: Its measurement and effects on cultural judgment and decision making, cultural adaptation and task performance. *Management and Organization Review, 3,* 335–371.

A short version Mini-CQS can be found in
Ang, S., & Van Dyne, L. (Eds.). (2008). *Handbook of cultural intelligence: Theory, measurement, and applications* (p. 391). New York, NY: M. E. Sharpe.

that the four-factor structure held across the two countries – Singapore and the United States – thereby establishing generalizability across countries.

Last, we cross-validated the CQS across methods. We developed an observer version of the scale, such that the items reflected observer ratings rather than self-ratings. Managers participating in an executive MBA program at a large university in the United States (N = 142, 47% female, average age 35) completed Web questionnaires that included self-report of CQ and interactional adjustment. In addition, participants also completed an observer questionnaire with peer-report of CQ and inter-action adjustment on one randomly assigned peer from their MBA team. Multitrait multimethod (MTMM) analysis provided evidence of convergent, discriminant, and criterion validity of the CQS across self- and peer ratings.

Collectively, the five studies provide evidence of the psychometric stability of the 20-item CQS across samples, time, countries, and methods (self- versus peer report). Analyses of additional questionnaires in Study 2 and Study 4 showed that CQ differed from general mental ability (g), emotional intelligence, cultural judgment and decision making, interactional adjustment, and mental well-being.

2.4 Predictive Validity of the CQS – Initial Evidence

We next conducted three substantive studies on the predictive validity of the CQS (N = 794) in field and educational settings across two national contexts – the United States and Singapore.

In Study 1, two samples of undergraduates (N = 235: Midwestern USA; N = 358: Singapore) completed the CQS, cultural judgment and decision making (CJDM) scenarios, rated their cultural adaptation, and provided information on demographics, general mental ability, cross-cultural adaptability, and cross-cultural experiences. In Study 2, international managers (N = 98)

participating in a three-day executive development program at a public university in Singapore completed the CQS and CJDM scenarios, and were rated for performance in an extended case analysis. In Study 3, working adults at an information technology consulting firm in Singapore completed Web questionnaires on cultural adjustment and well-being. Supervisors completed Web questionnaires on task performance and employee adjustment (interactional adjustment and work adjustment).

Across these instructional and work settings, results demonstrated a consistent pattern of relationships between CQ and three forms of intercultural effectiveness. The mental capabilities of metacognitive CQ and cognitive CQ predicted CJDM. Motivational CQ and behavioral CQ predicted sociocultural and psychological adjustment (see Section 3.4 for description of adjustment variables). Metacognitive CQ and behavioral CQ predicted task performance.

These results suggest that cognitive capabilities such as questioning assumptions, adjusting mental models, and having rich cultural knowledge schemas are especially important for making accurate judgments and decisions when situations involve cultural diversity. Results also show that the motivational capability to channel energy productively, even when intercultural situations are stressful, and the behavioral capability to exhibit flexible, culturally appropriate actions are especially important for coping with experiences in culturally diverse situations. The finding that metacognitive CQ and behavioral CQ predicted task performance in intercultural settings is consistent with existing conceptual and empirical research on organizational diversity. For instance, Caldwell and O'Reilly (1982) demonstrated that those who monitored the situation (metacognition) and adapted to the environment (behavioral flexibility) were more effective in boundary-spanning jobs that required interactions across groups with different norms. In sum, results highlight the value of carefully aligning specific

CQ capabilities with specific aspects of intercultural effectiveness.

2.5 Nomological Network of Cultural Intelligence

To facilitate future research, Ang and Van Dyne (2008) proposed an initial nomological network with antecedents, consequences, mediators, and moderators with relevance to CQ. The nomological network contains four basic relationships.

First, distal individual differences such as personality as well as demographic and biographical characteristics such as intercultural education and experiences (Stokes, Mumford, & Owens 1994) should predict the more state-like four factors of cultural intelligence. Second, the four factors of cultural intelligence should influence subjective perceptions of cultural encounters, subjective perceptions of uncertainty and anxiety in cross-cultural communication (Gudykunst, 2004), and participation and involvement in cross-cultural activities.

Third, the nomological network also incorporates other intelligences, including cognitive ability, social intelligence (Thorndike & Stein, 1937), emotional intelligence (Mayer & Salovey, 1993), and practical intelligence (Sternberg & Wagner, 2000), as correlates of CQ. Finally, the nomological network recognizes the importance of context. Specifically, when situations are weak, people have to rely on CQ as a guide for action (Earley & Ang, 2003). Restated, the four factors of cultural intelligence should have stronger effects on perceptions of the intercultural environment and participation in intercultural activities when norms are more ambiguous (weak situations). In other words, situational strength is an important moderator that qualifies the effects of cultural intelligence. Weak situations are vague, generating mixed expectations of the desired behavior. In strong situations, where the task environment is well structured and there are clear cues for task performance, cultural intelligence will have weaker effects.

3.0 Recent Empirical Evidence

Empirical research on CQ has proliferated ever since construct and predictive validity of the CQS scale were established by Ang and colleagues (2007). To date, scholars from different cultures around the world have used the CQS instrument to increase our understanding of correlates, predictors, consequences, and moderators in the nomological network of CQ.

3.1 CQ in Relation to Other Intelligences

Given that cultural intelligence is a form of nonacademic intelligence that goes beyond the traditional mental and academic intelligences, a number of studies have tried to examine whether CQ is empirically distinct from EQ and social intelligence. Moon (2010), through confirmatory factor analyses, found that CQ and EQ are distinct. In Moon's study, correlations between CQ dimensions and EQ dimensions ranged between .20 and .41. Kim, Kirkman, and Chen (2008), using multitrait-multimethod (MTMM) analyses, showed self-rated CQ correlated with friend-rated CQ (.43) more strongly than with friend-rated EQ (.26). Kim et al.'s (2008) confirmatory factor analyses also showed discriminant validity between CQ and EQ. Crowne (2009) found CQ to be discriminant from EQ and social intelligence and CQ to be related to EQ at .31 and to social intelligence at .42. Rockstuhl, Ng, Seiler, Ang, and Annen (2009b) showed that CQ correlated more strongly with EQ (.62) than with general intelligence (.15). Thus far, studies have consistently shown that CQ is related to but distinct from other forms of nonacademic intelligences.

3.2 Personality and CQ

Stable personality traits describe *typical behavior* across situations and times. In contrast, CQ describes a person's ability to be effective in culturally diverse settings. Since personality influences choice of

behaviors and experiences, some personality traits should be related to CQ. Empirically, Ang, Van Dyne, and Koh (2006) showed discriminant validity of the four dimensions of CQ compared to the Big Five personality traits and demonstrated that openness to experience, the tendency to be imaginative, creative, and adventurous (Costa & McCrae, 1992), was related to all four dimensions of CQ. This makes sense because CQ is a set of capabilities targeted at novel cultural situations. Moody (2007) also found that openness to experience predicted CQ, and Oolders, Chernyshenko, and Stark (2008) demonstrated that the six subfacets of openness to experience – intellectual efficiency, ingenuity, curiosity, aesthetics, tolerance, and depth – were significantly related to the four facets of CQ.

Evidence of the openness to experience-CQ relationship has also led to studies on CQ as a mediator of the relationship between personality and adaptation-related outcomes. CQ partially mediates the relationship between openness to experience and adaptive performance (Oolders et al., 2008). CQ also mediates the relationship between flexibility, one of the subscales of the Multicultural Personality Questionnaire (MPQ; van der Zee & van Oudenhoven, 2000) and general cross-cultural adjustment (Ward & Fischer, 2008).

These studies provide fresh impetus for personality research on openness to experience. The typical view of openness has been that it is a relatively useless trait because it previously did not demonstrate consistent relationships with job-related outcomes, unlike the other dimensions of the Big Five (Barrick, Mitchell, & Stewart, 2003). However, the research cited here suggests that openness to experience might be a critical personality factor in intercultural situations. These research results should trigger additional research on openness to experience, particularly in dynamic work situations where curiosity, broad-mindedness, and imagination are valued.

3.3 International Experience and CQ

CQ is a malleable individual difference. Accordingly, experience can increase an individual's CQ. To date, the relationship between international experience and CQ has attracted a large amount of research attention worldwide.

Some studies examine specific features of international experience. Wilson and Stewart (2009) studied voluntary international service programs and found that CQ increased the most for those experiencing their first international service assignment, suggesting diminishing marginal increments in CQ as the number of international experiences increased. Crawford-Mathis (2009) showed the importance of depth of cross-cultural experience because volunteers in Belize who spent more time interacting with local citizens had higher increases in CQ at the end of their service project. Likewise, staying in a hostel in a different country and eating with local residents increased CQ, while staying in an expatriate compound or residence reduced opportunities for contact with local citizenry (Crowne, 2007). Finally, Shokef and Erez (2008) found that multicultural team experience increased CQ over time.

Other studies used operationalizations of international experience that fall within Takeuchi, Tesluk, Yun, and Lepak's (2005) framework of international experience, which differentiates work and nonwork international experience as well as nonwork travel and study experience. Shannon and Begley (2008) found that the number of countries worked in predicted metacognitive CQ and motivational CQ. Crowne (2008) showed that number of countries visited for employment predicted metacognitive CQ, cognitive CQ, and behavioral CQ, but not motivational CQ. Tay, Westman, and Chia (2008) found that length of international work experiences predicted cognitive CQ. For nonwork experience, Crowne (2008) showed that number of countries visited for educational purposes predicted cognitive CQ and behavioral CQ and that

number of countries visited for vacation predicted motivational CQ. In contrast, Tarique and Takeuchi (2008) demonstrated that number of countries visited predicted all four facets of CQ, and also they showed that length of travel predicted metacognitive CQ and cognitive CQ.

The differences across these studies indicate that the international experience hypothesis needs theoretical refinement to unravel inconsistent results. One possibility would be to consider dynamic interactions. For example, Tay et al. (2008) found that the positive relationship between international work experience and CQ was stronger for business travelers when their need for control was lower. They reasoned that those with low need for control might have been better able to capitalize on international work experiences because they did less pre-trip preparation and might have had fewer preconceived notions than those with high need for control. A second possibility proposed by Ng, Van Dyne, and Ang (2009) is the value of thinking about CQ as an essential learning capability that is required to transform international experiences into effective experiential learning in culturally diverse contexts, rather than conceptualizing international experience as a predictor of CQ.

3.4 CQ and Cultural Adaptation

Research demonstrates that CQ predicts cultural adaptation – a key outcome in psychological research on sojourners (Church, 1982). Cultural adaptation comprises two dimensions: sociocultural and psychological adjustment. Sociocultural adjustment includes general adjustment to foreign living conditions; work adjustment to foreign work culture; and interactional adjustment – the extent of socializing and getting along with those from another culture. Psychological adjustment refers to a person's general mental well-being when immersed in another culture.

Ang et al.'s (2007) series of CQ studies shows that undergraduates and IT professionals with higher motivational and behavioral CQ have better general, work, and interactional adjustment, as well as enhanced mental well-being in multicultural settings. Templer, Tay, and Chandrasekar (2006) showed that motivational CQ predicted work and general adjustment of global professionals over and above realistic job preview information – the extent to which the employer accurately portrayed relevant job-related aspects at the time global professionals accepted their job and realistic living conditions preview – the extent to which the global professionals had gathered accurate information on general living conditions in the host country prior to relocation. Williams's (2008) study of American expatriates living and working in China showed that cognitive CQ predicted sociocultural adjustment, while motivational CQ predicted sociocultural adjustment and psychological adjustment. Chen, Kirkman, Kim, Farh, and Tangirala (2010) incorporated contextual moderators and showed that motivational CQ influenced work adjustment of expatriates more when cultural distance and subsidiary support were low.

Using a different operationalization, Gong and colleagues (Gong & Chang, 2007; Gong & Fan, 2006) decomposed motivational CQ into self-efficacy (social self-efficacy) and valence (social interaction goals) components. Their results showed that motivational CQ predicted sojourner social adjustment. Collectively, these studies point to the importance of motivational CQ in predicting cultural adaptation.

3.5 CQ and Performance

Work performance is a multidimensional construct (Campbell, 1990), and empirical evidence is increasingly showing that CQ predicts various aspects of performance. Ang et al. (2007) showed that individuals with higher metacognitive CQ and cognitive CQ performed better at cultural decision making, and those with higher metacognitive CQ and behavioral CQ demonstrated

higher task performance. Refining these results, Chen et al. (2010) showed that CQ influenced performance by enhancing cultural adaptation.

Research also shows that CQ predicts effectiveness in intercultural negotiation. Specifically, Imai and Gelfand's (2010) negotiation simulation demonstrated that motivational CQ predicted negotiation effectiveness in dyads. Moreover, the minimum CQ score was enough to predict integrative behaviors, which in turn predicted joint profits. Another important outcome is strategic decision-making effectiveness. For example, Prado (2006) showed that cognitive CQ increased perceived cross-border environmental uncertainty among managers who evaluated cross-border opportunities. This finding has implications for strategic decision-making effectiveness and cross-border business performance because firms can mitigate uncertainties with risk management tools only if the uncertainties are perceived.

To date, most studies have focused on the positive outcomes of CQ capabilities. Beyene (2007), however, uncovered a dark side of CQ. In a global organization that mandated employees to use English as their common language, or lingua franca, she found that CQ appeared to motivate nonnative English speakers to engage in frequent interactions with native English-speaking colleagues. However, this can create problems because lingua franca communication creates a socially stigmatizing context for less fluent communicators, engenders feelings of incompetence and inferiority, and can cause stigmatized employees to withdraw from communication situations. This research highlights the importance of language fluency and suggests that future research should assess boundary conditions of CQ-performance relationships.

3.6 CQ *and Global Leadership*

Leaders in global organizations face the stark reality that employees and customers are increasingly culturally diverse. More than ever, global leaders require cultural competencies to operate effectively in cross-border, multi-ethnic environments (Livermore, 2009). To date, research has examined both qualitative and quantitative aspects of CQ and global leadership.

Among the qualitative studies, Dean (2007) found that global leaders endorse and adopt metacognitive CQ principles in leadership processes. Deng and Gibson's (2008) in-depth interviews with Western expatriates and Chinese managers showed that motivational CQ is a sine qua non for cross-cultural leadership effectiveness.

Among the quantitative studies, Elenkov and Manev (2009) studied senior corporate leaders and their subordinates in 27 countries of the European Union and showed that senior expatriate managers' CQ magnified the effects of visionary-transformational leadership on organizational innovation. CQ enabled these leaders to set culturally suitable goals, achieve clarity in leadership, and implement more organizational innovations. Rockstuhl et al. (2009b) examined general intelligence, EQ, and CQ of Swiss military leaders. After accounting for controls – experience and Big Five personality traits – general intelligence predicted leadership effectiveness in both domestic and cross-border contexts. Interestingly, above and beyond general intelligence, EQ was a stronger predictor of leadership effectiveness in domestic contexts while CQ was a stronger predictor of leadership effectiveness in cross-border contexts. This shows that effective domestic leaders are not necessarily effective global leaders, with CQ a key differentiating factor (Alon & Higgins, 2005).

3.7 CQ *and Multicultural Teams*

With globalization and persistent challenges facing groups composed of individuals from different parts of the world, research on CQ has galvanized around multicultural teams. Studies show that multicultural teams can draw on the CQ of their members to overcome potential negative processes associated with team diversity and instead tap diversity of member knowledge as a strength (Moynihan, Peterson, & Earley, 2006).

Rockstuhl and Ng (2008) found that higher metacognitive and cognitive CQ enhanced affect-based trust in culturally diverse dyad partners. They also showed that higher behavioral CQ displayed by a dyad partner led to higher affect-based trust in the dyad partner.

Chua and Morris's (2009) study of executives from diverse backgrounds (European, Asian, African American, Middle Eastern) showed that overall CQ increased affect-based trust (but not cognitive-based trust) among culturally different members of multicultural professional networks, which in turn led to sharing new ideas, exchanging ideas, and cross-pollination of ideas. High CQ in team members also expedites team integration (Flaherty, 2008), promotes team cohesion (Moynihan et al., 2006), and fosters global identity (Shokef & Erez, 2008). Collectively, these studies show that CQ mitigates emotional conflict typically associated with demographic diversity in teams.

3.8 CQ *and Social Networks*

Research has begun to consider the extent to which CQ, as an individual capability, can facilitate development of network ties that span geographical, cultural, and ethnic boundaries. For example, Ang and Ng (2005) theorized that an agile and adaptive military force requires leaders with the ability to manage complex relationships arising from diverse cultural contexts and the capacity to network both internally and externally. Thus, CQ could facilitate military operations through network relationships that sustain coalition teams in multinational military and peacekeeping efforts.

Fehr and Kuo (2008) studied individuals in a multicultural university living community (Americans, Asian, Europeans, South Americans, and Australians). Students lived in close quarters and participated in structured communal activities, including visits to museums and field trips. Results showed that CQ predicted denser relationship networks. In another study, they found that CQ predicted development of relationship networks during studying abroad – controlling

for international experience, host country language fluency, and cultural distance. In both of these studies, greater relationship networks predicted greater belongingness as well as fewer withdrawal cognitions and behaviors. Torp and Gjertsen (2009) surveyed engineers from 12 nationalities drawn from Northern Europe and Asia and showed that those with high CQ had higher centrality in friendship networks for social support at work but had lower centrality in advice networks at work. Instead, those with longer tenure and more position power occupied central positions in advice networks. They commented that CQ may have less of an effect on advice networks in highly technical industries where technical jargon leaves less room for cross-cultural misinterpretation in task resolution.

In sum, theory and research suggest that CQ facilitates formation of expressive ties. In contrast, the role of CQ relative to formation of instrumental ties requires further investigation.

4.0 Future Directions

4.1 Deepening the Conceptualization of CQ

This integrative review of CQ research summarizes initial empirical evidence of the nomological network of CQ. This research complements the construct validity of Ang and colleagues (2007) and suggests the benefits of future research that deepens understanding of each of the four factors of CQ – with special attention to research on the subfacets of each of the four factors as well as research on interrelationships among the four factors.

Gelfand and colleagues (2008) called for theory and research on interrelationships among the four factors of CQ. Van Dyne et al. (2010) developed a conceptual model of interrelationships among the four factors, such that motivational CQ – defined as the capability to direct attention and energy toward cultural differences – drives the development of the mental metacognitive and cognitive CQ. Then, motivational

and mental capabilities influence enact-
ment of behavioral CQ. Alternatively, it
seems plausible that the two mental capa-
bility factors (metacognitive and cogni-
tive CQ) drive behavioral CQ, but this
relationship is moderated by motivational
CQ. Another promising direction for future
research would be examining the compen-
satory effects of the CQ factors in combina-
tion with each other. For example, it is possi-
ble that negative effects of a low score on one
CQ factor can be mitigated by high scores
on other CQ factors. Alternatively, it is pos-
sible that maximum intercultural effective-
ness requires moderate to high scores on all
four factors. To address this question, we
recommend configurational studies (Meyer,
Tsui, & Hinings, 1993) that assess the extent
to which CQ factors complement or substi-
tute for each other. These are exciting ideas
for future research.

Future research is also needed on sub-
factors of each of the four factors because
each of the factors is multidimensional in
nature and needs to be understood more
deeply at the subfacet level. Van Dyne et al.
(2010) theorized that metacognitive CQ
includes the cognitive processes of (1) aware-
ness, (2) planning, and (3) checking mental
models; that cognitive CQ includes knowl-
edge of cultural systems as well as cul-
tural norms and values; that motivational
CQ includes intrinsic motivation, extrin-
sic motivation, and self-efficacy; and that
behavioral CQ includes flexibility in ver-
bal and nonverbal actions as well as flexibil-
ity in speech acts. Thomas (2006) proposed
that cultural mindfulness could be a use-
ful theoretical frame for deeper considera-
tion of the awareness dimension of metacog-
nitive CQ. Klafehn, Banerjee, and Chiu
(2008) proposed that flexibility in cultural
frame switching is a cognitive mechanism
for enhancing metacognitive capabilities.

Linguistics research has important rel-
evance to subfactors of behavioral CQ.
For example, Spencer-Oatey and Xing
(2000) analyzed interactions between cul-
turally diverse persons and identified dis-
course domain, stylistic domain, nonver-
bal domain, participation domain, and

illocutionary domain as important to effec-
tiveness. Some of these domains, such as
stylistic (e.g., stylistic aspects of interchange,
such as choice of tone) and nonverbal (e.g.,
gestures, body movements, eye contact, and
proxemics) have already been discussed by
Earley and Ang (2003) and are included in
the CQS. Incorporating additional domains
(discourse, participation, and illocutionary)
could further refine the conceptualization
and assessment of behavioral CQ. Molin-
sky's (2007) work on cross-cultural code-
switching also has important relevance to
behavioral CQ. Specifically, Molinsky pro-
posed that behavioral CQ has a performance
dimension and an identity dimension. Thus
intercultural effectiveness requires the per-
formance challenge of successfully enact-
ing a novel set of behaviors and the iden-
tity challenge of behaving in a manner
that is potentially in conflict with personal
core values. For example, deviating from
accustomed behavior and displaying a dif-
ferent set of appropriate behaviors in a
cross-cultural interaction can exact a psy-
chological toll and elicit feelings of guilt,
distress, and anxiety that deplete psycho-
logical resources for subsequent interac-
tions. In sum, we emphasize the value of
future research on subfacets of the four CQ
factors.

4.2 Expanding the Nomological Network of CQ

Although our summary of research indi-
cates exciting and growing knowledge of
the CQ nomological network, many rela-
tionships within the CQ nomological net-
work remain untested. For example, much
research has considered EQ and CQ, but less
research focuses on CQ and other nonaca-
demic intelligences such as practical intelli-
gence (Sternberg, 2008).

To date, research theorizes and demon-
strates that because CQ is a state-like indi-
vidual difference (Ang & Van Dyne, 2008;
Earley & Ang, 2003; Van Dyne et al.,
2008), it is predicted by some personal-
ity traits. Specifically, research consistently
shows that openness to experience is a key

predictor of overall CQ and the facets of CQ. Results on other Big Five personality characteristics, however, are equivocal – with significant relationships in some studies but not others (see Ang et al., 2006; Moody, 2007). Thus, future research is needed on personality and subfacets of personality as they relate to CQ. In addition, this research would benefit from consideration of demographics and biographical characteristics as moderators that influence other relationships involving CQ.

Research that considers other aspects of personality that go beyond the Big Five personality characteristics is growing. For example, need for control – defined as an individual's desire and intent to exert influence over situations – is positively related to all four facets of CQ (Tay et al. 2008). Crawford-Mathis (2009) demonstrated that the self-presentation facet of self-monitoring personality predicted increases in CQ based on participation in voluntary philanthropic service projects. Research also shows that global identity – defined as self-transcendence toward universalism and benevolence and a person's sense of belongingness to the human species – predicts CQ and leader emergence in multicultural teams (Lee, Masuda, & Cardona, 2009; Shokef & Erez, 2008). In addition, other personal attributes and traits have been postulated as antecedents of CQ but remain untested. These include biculturalism, ethnocentrism, core self-evaluation, need for closure, and social axioms.

Further, some relationships have been demonstrated empirically but remain theoretically underdeveloped. For example, Alon and Higgins (2005) demonstrated a positive relationship between language skills and CQ. At the same time, they called for additional research on linguistic competence (see also Beyene, 2007, Section 3.5).

Another important emerging topic focuses on contextual conditions that influence CQ. Ng, Tan, and Ang (in press) proposed that multinational corporations with firm-level global cultural capital – which refers to global mind-set values and organizational routines that support such values – could impact employees' cultural intelligence via the process of situated learning. Specifically, firms that emphasize global mind-sets and actively promote organizational routines that facilitate employees' acquisition and integration of local knowledge create more opportunities for employees to experience intercultural interactions across geographical locations and this should enhance cultural intelligence capabilities.

To date, research on the consequences side of the nomological network of CQ has focused primarily on the direct effects of CQ on cultural adaptation and performance. Gelfand et al. (2008) called for research that goes beyond "quasi-tautological" reasoning (where CQ affects outcomes in cross-cultural context because people know more about culture) and instead recommended research that focuses on intermediate outcomes and mediators so that we refine our understanding of how CQ leads to distal outcomes such as adaptation and performance. Obviously the link between CQ and performance requires more refined conceptual thought and empirical investigation. For example, more complex models that include mediating processes as well as situational moderators would add value to the field.

As an example, Shaffer and Miller (2008) proposed a complex moderated-mediated model that distinguishes CQ from performance outcomes in the context of expatriation. This model suggests interaction effects between CQ and Big Five personality, role clarity, role discretion, role novelty, and role conflict in predicting expatriate adjustment, performance, retention, and career success. As another example of making explicit the link between CQ and performance, Mannor (2008) postulated relationships between CQ and top executives' information processing, decision making, and performance. Mannor's theoretical arguments suggest that top executives who are more culturally intelligent are better able to scan their environments for relevant and accurate information and use this higher quality information to make better decisions and take better calculated risks, with positive implications for

stakeholder evaluations of firm and top executive performance.

4.3 Developing Complementary Measures of Cultural Intelligence

To date, most of the empirical research on cultural intelligence has used the Cultural Intelligence Scale (CQS) (Ang et al., 2007). The scale can be used for self- or observer report of CQ. Reported measures of intelligence have advantages because they provide important perspectives and they reliably predict performance and other outcomes. Nevertheless, future research should assess alternative ways of measuring cultural intelligence because reported measures can be upward biased (based on individual self-enhancement or on a self-enhancing culture) or downward biased (based on modesty or a self-effacing culture). To that end, Harris and Lievens (2005) proposed an assessment center approach that uses a range of behavioral and cognitive tests. Gelfand et al. (2008) suggested a plethora of other ways of assessing cultural intelligence, including implicit measures of cultural knowledge using priming techniques, objective tests of cultural knowledge, cognitive mapping that assesses the complexity of cultural knowledge, and physiological probes of cultural intelligence.

More recently, Rockstuhl, Ang, Ng, Van Dyne, and Lievens (2009a) developed a performance-based assessment of mental CQ (metacognitive and cognitive CQ) using a multimedia situational judgment test methodology with the objective of complementing the existing CQS Likert-type scale. Subjects watch a series of enacted intercultural dilemmas and indicate what they would do in each dilemma. Responses are coded for effectiveness of subjects' resolutions to the dilemmas. Results demonstrated the benefits of both Likert-type and performance-based measures. The self-report measure of CQ predicted cross-cultural leader emergence – as measured by peers over and above IQ, EQ, openness to experience, and international experience. In addition, the performance-based measure of CQ increased explained variance in

cross-cultural leader emergence above and beyond self-report of CQ. Thus, we recommend future research that builds on Rockstuhl et al.'s (2009a) research and considers other complementary approaches to assessing CQ.

4.4 Going Beyond the Individual Level of Analysis

Cultural intelligence was originally conceptualized as an individual capability. As such, much of the empirical research has focused on the construct at the individual level of analysis. A growing body of research, however, is beginning to consider cultural intelligence in teams and social networks (see Sections 3.7 and 3.8). Given that cultural intelligence focuses on the capability to function effectively in culturally diverse situations, CQ capabilities are inherently embedded in the individual's web of intercultural interactions.

Accordingly, we recommend the value of future research that considers cultural intelligence as a characteristic of intercultural dyads and multicultural teams. This will require consideration of alternative compositional models that specify the functional relationships of cultural intelligence at the dyadic, team, and higher levels. It will also require additional research on the validity of CQ at higher levels of analysis. For example, it would be possible to assess dyadic or team-level CQ using direct consensus or referent shift models. Alternatively, research could consider dispersion models of how CQ is distributed within teams or comparison of an individual's CQ relative to the mean level of CQ. All of these approaches, however, will require explicit theorizing.

Cultural intelligence could also be conceptualized at the organizational level – as a property of the firm. For example, van Driel (2008) explored two competing approaches for assessing CQ at the organizational level of analysis: aggregated individual responses using the direct consensus approach versus a 25-item self-report measure of organizational-level cultural intelligence based on synthesis of CQ

and the organizational intelligence literature. Results in a military context showed that the self-report scale of the organization's capability to deal with intra-organizational diversity was a better predictor of equal opportunity behaviors and organizational performance than the direct consensus composition measure. Drawing on the resource-based view of the firm, Ang and Inkpen (2008) developed an alternative model of organizational-level cultural intelligence with three components: managerial CQ, competitive CQ, and structural CQ. Specifically, they argue that firm-level cultural intelligence is an important competitive resource in the context of international business ventures and they predict that firms must be culturally intelligent to leverage off shoring and other ventures.

These concepts of dyadic-, team-, and organizational-level CQ are still nascent. Thus, future research could theorize about the extent to which CQ models have homology where parallel relationships are theorized and tested across different levels of analysis. Future research could also delineate and test more comprehensive, dynamic, and complex nomological networks that include multilevel and cross-level relationships that link higher level CQ with individual, dyadic, team, and organizational outcomes.

5.0 Conclusion

Cultural intelligence is an exciting new construct that has important theoretical and practical implications as evidenced by the expanding interest exhibited by scholars, managers, employees, educators, and consultants. Clearly, CQ resonates with researchers and practitioners who are concerned with adaptation to and effectiveness in multicultural settings.

Although the concept of CQ was originally developed in the context of global business environments, it has been applied to numerous other disciplines and contexts, including cross-cultural applied linguistics (Rogers, 2008), military operations (Ang & Ng, 2005; Ng, Ramaya, Teo, & Wong, 2005;

Selmeski, 2007), United Nations peacekeeping operations (Seiler, 2007), transnational families (Janhonen-Abruquah, 2006), immigrants (Leung & Li, 2008), international missionary work (Livermore, 2006, 2008, 2009), spiritual leadership (Tavanti, 2005), mental health counseling (Goh, Koch, & Sanger, 2008; Jennings, D'Rozario, Goh, Sovereign, Brogger, & Skovholt, 2008), and library management (Wang & Su, 2006). Educators have also realized the importance of preparing students for demands in diverse workplaces and in the global workforce. Education researchers are calling for increased awareness of cultural differences in learning styles (Joy & Kolb, 2009) and for development of CQ in teachers and students (Gokulsing, 2006; Griffer & Perlis, 2007; Tomalin, 2007). In addition, CQ can also be meaningfully applied in the contexts of international relations, marketing, and marketing education.

As summarized in this integrative literature review, we have learned a lot about CQ. More important, we have described important topics and areas that require future research and practical application.

References

Ackerman, P. L. (1996). A theory of adult intellectual development: Process, personality, interests, and knowledge. *Intelligence, 22*, 227–257.

Alon, I., & Higgins, J. M. (2005). Global leadership success through emotional and cultural intelligences. *Business Horizons, 48*, 501–512.

Ang, S., & Inkpen, A. C. (2008). Cultural intelligence and offshore outsourcing success: A framework of firm-level intercultural capability. *Decision Sciences, 39*, 337–358.

Ang, S., & Ng, K. Y. (2005). Cultural and network intelligences: The twin pillars in leadership development for the 21st century era of global business and institutional networks. In K. Y. Chan, et al. (Eds.), *Systems and spirit* (pp. 46–48). Singapore Armed Forces Military Institute Monograph, Singapore.

Ang, S., & Van Dyne, L. (2008). Conceptualization of cultural intelligence: Definition, distinctiveness, and nomological network. In S. Ang & L. Van Dyne (Eds.), *Handbook of cultural intelligence: Theory, measurement, and*

applications (pp. 3–15). New York, NY: M. E. Sharpe.

Ang, S., Van Dyne, L., & Koh, C. (2006). Personality correlates of the four-factor model of cultural intelligence. *Group and Organization Management, 31,* 100–123.

Ang, S., Van Dyne, L., Koh, C., Ng, K. Y., Templer, K. J., Tay, C., & Chandrasekar, N. A. (2007). Cultural intelligence: Its measurement and effects on cultural judgment and decision making, cultural adaptation and task performance. *Management and Organization Review, 3,* 335–371.

Bandura, A. (2002). Social cognitive theory in cultural context. *Applied psychology: An international review, 51,* 269–290.

Barrick, M. R., Mitchell, T. R., & Stewart, G. L. (2003). Situational and motivational influences on trait-behavior relationships. In M. R. Barrick & A. M. Ryan (Eds.), *Personality and work* (pp. 60–82). San Francisco, CA: Jossey-Bass.

Beyene, T. (2007). *Fluency as a stigma: Implications of a language mandate in global work.* Unpublished doctoral dissertation, Stanford University.

Caldwell, D. F., & O'Reilly, C. A., III. (1982). Boundary spanning and individual performance: The impact of self-monitoring. *Journal of Applied Psychology, 67,* 124–127.

Campbell, J. P. (1990). Modeling the performance prediction problem in industrial and organizational psychology. In M. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (Vol. 1, 2nd ed., pp. 687–731). Palo Alto, CA: Consulting Psychologists Press.

Ceci, S. J. (1996). *On intelligence: A bioecological treatise on intellectual development.* Cambridge, MA: Harvard University Press.

Chen, G., Kirkman, B. L., Kim, K., Farh, C. I. C., & Tangirala, S. (2010). When does cross-cultural motivation enhance expatriate effectiveness? A multilevel investigation of the moderating roles of subsidiary support and cultural distance. *Academy of Management Journal, 53,* 1110–1130.

Chua, R. Y., & Morris, M. W. (2009). *Innovation communication in multicultural networks: Deficits in inter-cultural capability and affect-based trust as barriers to new idea sharing in inter-cultural relationships.* Working paper, Harvard Business School.

Church, A. (1982). Sojourner adjustment. *Psychological Bulletin, 91,* 540–572.

Costa, P. T., & McCrae, R. R. (1992). *Revised NEO-Personality Inventory (NEO-PI-R) and NEO Five Factor Inventory (NEO-FFI) professional manual.* Odessa, FL: Psychological Assessment Resources.

Crawford-Mathis, K. (2009). *A longitudinal study of cultural intelligence and self-monitoring personality.* Paper presented at the Academy of Management Meeting, Chicago, IL.

Crowne, K. (2007). *The relationships among social intelligence, emotional intelligence, cultural intelligence, and cultural exposure.* Unpublished doctoral dissertation, Temple University.

Crowne, K. A. (2008). What leads to cultural intelligence? *Business Horizons, 51,* 391–399.

Crowne, K. (2009). *Social intelligence, emotional intelligence, cultural intelligence and leadership: Testing a new model.* Paper presented at the Academy of Management Meeting, Chicago, IL.

Dean, B. P. (2007). *Cultural intelligence in global leadership: A model for developing culturally and nationally diverse teams.* Unpublished doctoral dissertation, Regent University.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior.* New York, NY: Plenum.

Deng, L., & Gibson, P. (2008). A qualitative evaluation on the role of cultural intelligence in cross-cultural leadership effectiveness. *International Journal of Leadership Studies, 3,* 181–197.

Earley, P. C., & Ang, S. (2003). *Cultural intelligence: Individual interactions across cultures.* Palo Alto, CA: Stanford University Press.

Earley, P. C., & Gibson, C. B. (2002). *Multinational work teams: A new perspective.* Hillsdale, NJ: Erlbaum.

Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals, In S. T. Fiske, D. L. Schacter, & C. Zahn-Waxler (Eds.), *Annual review of psychology* (Vol. 53, pp. 109–132). Palo Alto, CA: Annual Reviews.

Elenkov, D. S., & Manev, I. M. (2009). Senior expatriate leadership's effects on innovation and the role of cultural intelligence. *Journal of World Business, 44,* 357–369.

Fehr, R., & Kuo, E. (2008). *The impact of cultural intelligence in multicultural social networks.* Paper presented at the 23rd Annual Conference of the Society for Industrial and Organizational Psychology (SIOP), San Francisco, CA.

Flaherty, J. E. (2008). The effects of cultural intelligence on team member acceptance and

integration in multinational teams. In S. **Ang** & L. Van Dyne (Eds.), *Handbook of cultural intelligence: Theory, measurement, and applications* (pp. 192–205). New York, NY: M. E. Sharpe.

Gelfand, M. J., Imai, L., & Fehr, R. (2008). Thinking intelligently about cultural intelligence: The road ahead. In S. **Ang** & L. Van Dyne (Eds.), *Handbook of cultural intelligence: Theory, measurement, and applications* (pp. 375–387). New York, NY: M. E. Sharpe.

Goh, M., Koch, J. M., & Sanger, S. (2008). Cultural intelligence in counseling psychology: Applications for multicultural counseling competence. In S. **Ang** & L. Van Dyne (Eds.), *Handbook of cultural intelligence: Theory, measurement, and applications* (pp. 257–270). New York, NY: M. E. Sharpe.

Gokulsing, K. M. (2006). Without prejudice: An exploration of religious diversity, secularism and citizenship in England (with particular reference to the state funding of Muslim faith schools and multiculturalism). *Journal of Education Policy, 21,* 459–470.

Gong, Y., & Chang, S. (2007). The relationships of cross-cultural adjustment with dispositional learning orientation and goal setting: A longitudinal analysis. *Journal of Cross-Cultural Psychology, 38,* 19–25.

Gong, Y., & Fan, J. (2006). Longitudinal examination of the role of goal orientation in cross-cultural adjustment. *Journal of Applied Psychology, 91,* 176–184.

Griffer, M. R., & Perlis, S. M. (2007). Developing cultural intelligence in preservice speech-language pathologists and educators. *Communication Disorders Quarterly, 29,* 28–35.

Gudykunst, W. B. (2004). *Bridging differences* (4th ed.). Thousand Oaks, CA: Sage.

Hall, E. T. (1959). *The silent language.* New York, NY: Doubleday.

Harris, M., & Lievens, F. (2005). Selecting employees for global assignments: Can assessment centers measure cultural intelligence? In A. M. Rahim (Ed.), *Current topics in management* (Vol. 10, pp. 221–239). Greenwich, CN: JAI Press.

Imai, L., & Gelfand, M. J. (2010). The culturally intelligent negotiator: The impact of cultural intelligence (CQ) on negotiation sequences and outcomes. *Organizational Behavior and Human Decision Processes, 112,* 83–98.

Janhonen-Abruquah, H. (2006). *Eco-cultural theory in the research of trans-national families and their daily life.* Paper presented at the Second

EURODIV conference "Qualitative Diversity Research: Looking Ahead," Leuven, Belgium.

Jennings, L., D'Rozario, V., Goh, M., Sovereign, A., Brogger, M., & Skovholt, T. (2008). Psychotherapy expertise in Singapore: A qualitative investigation. *Psychotherapy Research, 18,* 508–522.

Joy, S., & Kolb, D. A. (2009). Are there cultural differences in learning style? *International Journal of Intercultural Relations, 33,* 69–85.

Kanfer, R., & Heggestad, E. D. (1997). Motivational traits and skills: A person-centered approach to work motivation. *Research in Organizational Behavior, 19,* 1–56.

Kim, K., Kirkman, B. L., & Chen, G. (2008). Cultural intelligence and international assignment effectiveness. In S. **Ang** & L. Van Dyne (Eds.), *Handbook of cultural intelligence: Theory, measurement, and applications* (pp. 71–90). New York, NY: M. E. Sharpe.

Klafehn, J., Banerjee, P. M., & Chiu, C-Y. (2008). Navigating cultures: The role of metacognitive cultural intelligence. In S. **Ang** & L. Van Dyne (Eds.), *Handbook of cultural intelligence: Theory, measurement, and applications* (pp. 318–331). New York, NY: M. E. Sharpe.

Lee, Y-T., Masuda, A. D., & Cardona, P. (2009). *Leadership perception and individual performance in multicultural teams: The role of cultural intelligence and cultural identities.* Symposium presented at the Academy of Management Meetings, Chicago, IL.

Leung, K., & Li, F. (2008). Social axioms and cultural intelligence: Working across cultural boundaries. In S. **Ang** & L. Van Dyne (Eds.), *Handbook of cultural intelligence: Theory, measurement, and applications* (pp. 332–341). New York, NY: M. E. Sharpe.

Livermore, D. (2006). *Serving with eyes wide open: Doing short-term missions with cultural intelligence.* Grand Rapids, MI: Baker Books.

Livermore, D. A. (2008). Cultural intelligence and short-term missions: The phenomenon of the fifteen-year-old missionary. In S. Ang & L. Van Dyne (Eds.), *Handbook of cultural intelligence: Theory, measurement, and applications* (pp. 271–285). New York, NY: M.E. Sharpe.

Livermore, D. A. (2009). *Cultural intelligence: Improving your CQ to engage our multicultural world.* Grand Rapids, MI: Baker Academic.

Mannor, M. J. (2008). Top executives and global leadership: At the intersection of cultural intelligence and strategic leadership theory. In S. Ang & L. Van Dyne (Eds.), *Handbook*

of cultural intelligence: Theory, measurement, and applications (pp. 91–106). New York, NY: M. E. Sharpe.

Mayer, J. D., & Salovey, P. (1993). The intelligence of emotional intelligence. Intelligence, 17, 433–442.

Meyer, A. D., Tsui, A. S., & Hinings, C. R. (1993). Configurational approaches to organizational analysis. Academy of Management Journal, 36, 1175–1195.

Molinsky, A. (2007). Cross-cultural code-switching: The psychological challenges of adapting behavior in foreign cultural interactions. Academy of Management Review, 32, 622–640.

Moody, M. C. (2007). Adaptive behavior in intercultural environments: The relationship between cultural intelligence factors and Big Five personality traits. Unpublished doctoral dissertation, George Washington University.

Moon, T. (2010). Emotional intelligence correlates of the four-factor model of cultural intelligence. Journal of Managerial Psychology, 25, 876–898.

Moynihan, L. M., Peterson, R. S., & Earley, P. C. (2006). Cultural intelligence and the multinational team experience: Does the experience of working in a multinational team improve cultural intelligence? In Y-R. Chen (Ed.), Research on managing groups and teams (Vol. 9, pp. 299–323). Bingley, UK: Emerald Group.

Ng, K.Y., Tan, M. L., & Ang, S. (in press). Culture capital and cosmopolitan human capital: The impact of global mindset and organizational routines on developing cultural intelligence & international experiences in organizations. In A. Burton & J. C. Spender (Eds.), The Oxford handbook of human capital.

Ng, K.Y., Van Dyne, L., & Ang, S. (2009). From experience to experiential learning: Cultural intelligence as a learning capability for global leader development. Academy of Management Learning and Education, 8, 511–526.

Ng, K.Y., Ramaya, R., Teo, T. M. S., & Wong, S. K. (2005). Cultural intelligence: Its potential for military leadership development. Paper presented at the 47th International Military Testing Association, Singapore.

Oolders, T., Chernyshenko, O. S., & Stark, S. (2008). Cultural intelligence as a mediator of relationships between openness to experience and adaptive performance. In S. Ang & L. Van Dyne (Eds.), Handbook of cultural

intelligence: Theory, measurement, and applications (pp. 145–158). New York, NY: M. E. Sharpe.

Paige, R. M. (2004). Instrumentation in intercultural training. In D. Landis, J. M. Bennett, & M. J. Bennett (Eds.), Handbook of intercultural training (3rd ed., pp. 85–128). Thousand Oaks, CA: Sage.

Prado, W. H. (2006). The relationship between cultural intelligence and perceived environmental uncertainty. Unpublished doctoral dissertation, University of Phoenix.

Rockstuhl, T., Ang, S., Ng, K.Y., Van Dyne, L., & Lievens, F. (2009a). Cultural intelligence and leadership emergence in multicultural teams. Symposium presented at the Academy of Management meeting, Chicago, IL.

Rockstuhl, T., Ng, K.Y., Seiler, S., Ang, S., & Annen, H. (2009b). Emotional intelligence and cultural intelligence in global leadership effectiveness. Paper presented at the 24th Annual Conference of the Society for Industrial and Organizational Psychology meeting (SIOP), New Orleans, LA.

Rockstuhl, T., & Ng, K-Y. (2008). The effects of cultural intelligence on interpersonal trust in multicultural teams. In S. Ang & L. Van Dyne (Eds.), Handbook of cultural intelligence: Theory, measurement, and applications (pp. 206–220). New York, NY: M. E. Sharpe.

Rogers, P. S. (2008). The challenge of behavioral cultural intelligence: What might dialogue tell us? In S. Ang & L. Van Dyne (Eds.), Handbook of cultural intelligence: Theory, measurement, and applications (pp. 243–256). New York, NY: M. E. Sharpe.

Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. Psychological Bulletin, 124, 262–274.

Seiler, S. (2007). Determining factors of intercultural leadership – A theoretical framework. In C. M. Coops & T. S. Tresch (Eds.), Cultural challenges in military operations. Rome, Italy: NATO Defence College.

Selmeski, B. R. (2007). Military cross-cultural competence: Core concepts and individual development. (Occasional Paper Series – Number 1). Ontario, Canada: Royal Military College of Canada, Centre for Security, Armed Forces, and Society.

Shaffer, M., & Miller, G. (2008). Cultural intelligence: A key success factor for expatriates. In S. Ang & L. Van Dyne (Eds.), Handbook of

cultural intelligence: Theory, measurement, and applications (pp. 107–125). New York, NY: M. E. Sharpe.

Shannon, L. M., & Begley, T. M. (2008). Antecedents of the four-factor model of cultural intelligence. In S. Ang & L. Van Dyne (Eds.), *Handbook of cultural intelligence: Theory, measurement, and applications* (pp. 41–55). New York, NY: M. E. Sharpe.

Shokef, E., & Erez, M. (2008). Cultural intelligence and global identity in multicultural teams. In S. Ang & L. Van Dyne (Eds.), *Handbook of cultural intelligence: Theory, measurement, and applications* (pp. 177–191). New York, NY: M. E. Sharpe.

Spencer-Oatey, H., & Xing, J. (2000). A problematic Chinese business visit to Britain: Issues of face. In H. Spencer-Oatey (Ed.), *Culturally speaking: Managing rapport in talk across cultures* (pp. 272–288). London, UK: Continuum.

Sternberg, R. J. (1986). A framework for understanding conceptions of intelligence. In R. J. Sternberg & D. K. Detterman (Eds.), *What is intelligence?* (pp. 3–18). Norwood, NJ: Ablex.

Sternberg, R. J. (1997). *Successful intelligence: How practical and creative intelligence determine success in life*. New York, NY: Plume.

Sternberg, R. J. (2008). Successful intelligence as a framework for understanding cultural adaptation. In S. Ang & L. Van Dyne (Eds.), *Handbook of cultural intelligence: Theory, measurement, and applications* (pp. 306–317). New York, NY: M. E. Sharpe.

Sternberg, R. J., & Detterman, D. K. (1986). *What is intelligence?* Norwood, NJ: Ablex.

Sternberg, R. J., & Wagner, R. J. (2000). Practical intelligence. In R. J. Sternberg (Ed.), *Handbook of intelligence* (pp. 380–395). New York, NY: Cambridge University Press.

Stokes, G. S., Mumford, M. D., & Owens, W. A. (1994). Biodata handbook: *Theory, research, and use of biographical information in selection and performance prediction*. Palo Alto, CA: CPP Books.

Takeuchi, R., Tesluk, P. E., Yun, S., & Lepak, D. P. (2005). An integrative view of international experience. *Academy of Management Journal, 48,* 85–100.

Tarique, I., & Takeuchi, R. (2008). Developing cultural intelligence: The roles of international nonwork experiences. In S. Ang & L. Van Dyne (Eds.), *Handbook of cultural intelligence: Theory, measurement, and applications* (pp. 56–70). New York, NY: M. E. Sharpe.

Tavanti, M. (2005). Cross-cultural Vincentian leadership: The challenge of developing culturally intelligent leaders. *Vincentian Heritage Journal, 26,* 201–225.

Tay, C., Westman, M., & Chia, A. (2008). Antecedents and consequences of cultural intelligence among short-term business travelers. In S. Ang & L. Van Dyne (Eds.), *Handbook of cultural Intelligence: Theory, measurement, and applications* (pp. 126–144). New York, NY: M. E. Sharpe.

Templer, K. J., Tay, C., & Chandrasekar, N. A. (2006). Motivational cultural intelligence, realistic job preview, realistic living conditions preview, and cross-cultural adjustment. *Group and Organization Management, 31,* 154–173.

Thomas, D. C. (2006). Domain and development of cultural intelligence: The importance of mindfulness. *Group and Organization Management, 31,* 78–99.

Thorndike, R., & Stein, S. (1937). An evaluation of the attempts to measure social intelligence. *Psychological Bulletin, 34,* 275–285.

Tomalin, E. (2007). Supporting cultural and religious diversity in higher education: Pedagogy and beyond. *Teaching in Higher Education, 12,* 621–634.

Torp, A. N., & Gjertsen, T. (2009). *Social network centrality and brokerage: The effect of cultural intelligence.* Master of Science Thesis, BI Norwegian School of Management.

van Driel, M. (2008). *Cultural intelligence as an emergent organizational level construct.* Unpublished doctoral dissertation, Florida Institute of Technology.

Van Dyne, L., Ang, S., & Koh, C. (2008). Development and validation of the CQS: The cultural intelligence scale. In S. Ang & L. Van Dyne (Eds.), *Handbook of cultural intelligence: Theory, measurement, and applications* (pp. 16–38). New York, NY: M. E. Sharpe.

Van Dyne, L., Ang, S., & Livermore, D. (2010). Cultural intelligence: A pathway for leading in a rapidly globalizing world. In K. M. Hannum. B. McFeeters, & L. Booysen (Eds.), *Leading across differences: Cases and perspectives.* San Francisco, CA: Pfeiffer.

Van Der Zee, K. I., & van Oudenhoven, J. P. (2000). The Multicultural Personality Questionnaire: A multidimensional instrument of multicultural effectiveness. *European Journal of Personality, 14,* 291–309.

Wang, X., & Su, C. (2006). Develop future library leaders with global literacy in the context of cultural intelligence. *Chinese*

Librarianship: An International Electronic Journal, 22. Retrieved July 1, 2009, from http://www.iclc.us/cliej/cl22WangSu.htm.

Ward, C., & Fischer, R. (2008). Personality, cultural intelligence and cross-cultural adaptation: A test of mediation hypothesis. In S. Ang & L. Van Dyne (Eds.), *Handbook of cultural intelligence: Theory, measurement, and applications* (pp. 159–173). New York, NY: M. E. Sharpe.

Williams, M. E. (2008). *Individual differences and cross-cultural adaptation: A study of cultural intelligence, psychological adjustment, and socio-cultural adjustment.* Unpublished doctoral dissertation, TUI University.

Wilson, C. E., & Stewart, A. C. (2009). *Developing ethically & culturally-intelligent leaders through international service experiences.* Paper presented at the Academy of Management Meeting, Chicago, IL.