

RUNNING HEAD: CULTURAL INTELLIGENCE AND COMPETENCIES

## CULTURAL INTELLIGENCE AND COMPETENCIES

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## **Cultural Intelligence and Competencies**

### **Abstract**

With the continuing globalization of the workplace, understanding why some people thrive in intercultural contexts more than others has never been more crucial. Cultural intelligence is a person's capability to function effectively in intercultural contexts. In this entry, we take stock of the growing stream of research on cultural intelligence. In particular, we review the conceptualization, measurement, and empirical evidence for the nomological network of cultural intelligence. We also discuss recent theoretical extensions related to cultural intelligence. We conclude with an eye towards the future and suggest several exciting research directions to further advance our understanding of cultural intelligence.

*Keywords:* cross-cultural competence, cultural competencies, cultural intelligence

## **Cultural Intelligence and Competencies**

### **Theoretical Conceptualization of Cultural Intelligence**

#### *Definition*

Cultural Intelligence (CQ) refers to a person's capability to function effectively in culturally diverse contexts (Ang and Van Dyne 2008, Earley and Ang 2003). This definition of CQ as a capability emphasizes a person's potential to be effective across a wide range of intercultural contexts. Cultural intelligence differs from the capability to function effectively in a specific culture. Instead, cultural intelligence reflects a general set of capabilities that facilitate one's effectiveness across different cultural and in multicultural environments. In this sense, cultural intelligence is culture-free.

Cultural intelligence also differs from cross-cultural views of intelligence that emphasize the relativity of intelligence definitions depending on particular cultural and ecological contexts (Berry, 1976; Sternberg, 2004). For example, hunter-gatherers require different intelligences than agriculturalists to survive in their respective ecological environments. Therefore, the meaning of intelligence varies in each culture depending on its unique ecological context. While cultural intelligence does not refer to these culturally bound notions of intelligence, knowledge of such culturally bound views of intelligence does reflect high cultural intelligence (specifically, cognitive cultural intelligence, as we will describe below).

#### *Cultural intelligence as a multidimensional intelligence*

The conceptualization of cultural intelligence draws upon the rich history of intelligence research. Cultural intelligence builds on insights from intelligence research suggesting that intelligence is multifaceted. Integrating myriad views on intelligence, Sternberg and Detterman (1986) proposed that intelligence resides in

different loci within an individual: the biology, the cognition (including metacognition), the motivation, and the behaviors.

The cultural intelligence model (Earley and Ang, 2003) draws on Sternberg & Detterman's (1986) multiple-loci view of intelligence and comprises four factors: (1) metacognitive cultural intelligence, which reflects an individual's mental capability to acquire and understand cultural knowledge; (2) cognitive cultural intelligence, which reflects an individual's knowledge about cultures and cultural differences; (3) motivational cultural intelligence, which reflects an individual's capability to direct and sustain effort toward functioning in intercultural situations; and (4) behavioral cultural intelligence, which reflects an individual's capability for behavioral flexibility in cross-cultural interactions. While the initial conceptualization of cultural intelligence did not include biological aspects of intelligence, recent work on cultural intelligence has embraced biological foundations of cultural intelligence (see the later section on theoretical extensions).

#### *Cultural intelligence and other forms of intelligences*

Cultural intelligence is similar to social and emotional intelligence in that cultural intelligence is a form of interpersonal intelligence. Social intelligence is a broader form of interpersonal or real-world intelligence that refers to the ability to understand and manage others. Emotional intelligence refers more specifically to the ability to deal with emotions of self and others. Cultural intelligence shares similarities with social and emotional intelligence in that cultural intelligence includes the abilities to understand, manage, and deal with the emotions of others. However, unlike social and emotional intelligence, cultural intelligence explicitly considers the intercultural context. Understanding culturally different others requires a distinct set of abilities because of cultural variations in how people from different parts of the world express

themselves verbally and non-verbally. Hence, a person who is high in emotional intelligence or social intelligence is not necessarily high in cultural intelligence. Empirical studies have shown cultural intelligence to be distinct from emotional and social intelligence. Across multiple studies, confirmatory factor analyses showed discriminant validity between cultural intelligence and emotional intelligence. Furthermore, correlations between cultural intelligence and emotional intelligence dimensions ranged between .03 and .62. In addition, one study found cultural intelligence to be discriminant from social intelligence, with the correlation between the two constructs at .42.

Cultural intelligence is also similar to but distinct from general cognitive ability. General cognitive ability is a key predictor of performance across jobs and settings. Similarly, cultural intelligence should predict performance but more specifically in intercultural contexts (Ang and Van Dyne, 2008). Cultural intelligence is also distinct from general cognitive ability because the latter only includes the cognitive locus of intelligence and excludes the motivational, behavioral, and biological loci. Empirical studies show negative correlations between motivational cultural intelligence and general cognitive ability and weak correlations ranging between .00 and .11 for the other three factors of cultural intelligence (Ang et al., 2007; Ward et al., 2009). Empirical evidence also indicates that cultural intelligence has a stronger correlation with task performance in intercultural contexts than does general cognitive ability and hence has incremental validity over the latter for predicting performance in intercultural situations (Ang et al., 2007; Rockstuhl et al., 2011).

#### *Cultural intelligence and personality traits*

Personality traits refer to enduring personal characteristics that determine a stable pattern of cross-situational behavior (Costa and McCrae 1992). By contrast, cultural

intelligence is a set of abilities that determine what a person is capable of doing to be effective in cultural diverse settings. Hence, personality traits and cultural intelligence are conceptually distinct. However, given that personality traits affect a person's choice of behaviors and experiences, some personality traits might relate to cultural intelligence. In line with these conceptualizations, Ang et al. (2006) demonstrated discriminant validity between the four factors of cultural intelligence and the Big Five personality traits.

#### *Cultural intelligence and other cultural competencies*

Cultural competencies are an umbrella term for concepts related to intercultural effectiveness. In a recent review of cultural competence models, Ang et al. (2013) identified more than 30 cultural competence models with over 300 concepts related to cultural competence. These 300 concepts cover a broad range of personal characteristics including intercultural personality traits, intercultural attitudes and worldviews, or intercultural capabilities. Intercultural personality traits describe what a person typically does in intercultural contexts. Examples include tolerance for ambiguity or cultural empathy. Intercultural attitudes and worldviews refer to how a person perceives and evaluates experiences with other cultures. Examples include ethnocentrism or an ethnorelative worldview. Intercultural capabilities describe what a person can do to be effective in intercultural contexts. Examples of intercultural capabilities include self-awareness and global business savvy.

Cultural competence models differ in scope. Some models combine personality traits, attitudes and worldviews, and capabilities. Other models focus on unique domains of characteristics. For example, the Cultural Intelligence model concerns intercultural capabilities only.

The range and scope of different content domains covered by cultural competence models raises questions about the structural relationships between these content domains. Theories of job performance suggest that distal constructs such as personality traits and attitudes exert their effects on job performance via more proximal capabilities (Campbell et al., 1993). Hence, intercultural capabilities are more proximal predictors of performance in intercultural contexts and mediate effects of intercultural personality traits and intercultural attitudes and worldviews.

Therefore, we focus on capability models, and the cultural intelligence model in particular, for the remainder of this entry. We highlight the cultural intelligence model as a theoretically coherent and parsimonious framework of intercultural capabilities. Based on multiple-loci of intelligences, the concept of cultural intelligence is theoretically precise about what is and is not part of its construct space. The cultural intelligence concept is parsimonious in that it focuses on only four abstract factors (e.g., metacognition) rather than a vast number of narrower dimensions (e.g., self-awareness, cognitive complexity, cognitive flexibility, perspective taking, planning, checking, nonjudgmentalness, etc.). Such capabilities from other cultural competence models can be mapped onto the cultural intelligence model. However, other cultural competence models rarely consider all four factors simultaneously and thus lack the comprehensiveness offered by the cultural intelligence model for describing the capabilities domain.

### **Measurement of Cultural Intelligence**

Individual differences in cultural intelligence are measured using diverse methods. These methods include self-reports, observer-reports, and test-based measures.

#### *Self-reports of cultural intelligence*

Self-reported measures of cultural intelligence present respondents with a list of statements relevant to multiple dimensions of cultural intelligence (e.g., ‘I check the accuracy of my cultural knowledge as I interact with people from different cultures’). Respondents then express the degree to which they think the statement applies to them. As a measure of perceived capability, self-reported measures of cultural intelligence reflect one’s self-efficacy in cultural intelligence.

To date, most empirical research uses the 20-item four-factor Cultural Intelligence Scale (CQS) introduced by Ang et al. (2007). Van de Vijver and Leung (2009) advise that measures for use in intercultural contexts should demonstrate both factor structure validity and cross-cultural measurement equivalence. The Cultural Intelligence Scale meets both criteria. Its four-factor structure generalizes across a) multiple student and executive samples; b) repeated measurements using time intervals of up to four months; c) multiple countries, including Korea, Switzerland, Singapore, Turkey, and the U.S.; and d) culturally diverse samples of graduate and undergraduate students in Ireland or multicultural teams across countries including Israel, Hong Kong, Spain, South Korea, and USA.

#### *Observer-reports of cultural intelligence*

Observer-reports of cultural intelligence are a fundamental source of information about a person’s external manifestation of cultural intelligence and reflect a person’s cultural intelligence reputation. In observer-reports, acquaintances (friends, peers, supervisors, subordinates, etc.) summarize their perceptions of someone’s cultural intelligence reputation.

Van Dyne et al. (2008) introduced an observer-reported measure of cultural intelligence based on the 20-item Cultural Intelligence Scale. In an initial validation study with 142 executive MBAs, these authors found evidence for the convergent

validity between self-reported and observer-reported cultural intelligence. Kim and Van Dyne (2012) further supported the predictive validity of observer-reports of cultural intelligence. In a sample of 181 working adults, observer-reports of cultural intelligence from one group of observers predicted international leadership potential as rated by another group of observers.

#### *Tests of cultural intelligence*

Tests of cultural intelligence assess someone's cultural intelligence based on their performance in laboratories or other controlled conditions. For example, Rockstuhl et al. (2013a; 2013b) introduced a situational judgment test to measure metacognitive cultural intelligence. This test presents respondents with multimedia vignettes of challenging work-related intercultural situations and asks them how they would respond in that situation. Responses are then scored in terms of how effective they resolve the situation in the vignette. The greater correspondence to real situations with richer portrayals of detailed cultural information (e.g., nonverbal gestures), also referred to as greater fidelity, is a primary appeal of using multimedia instead of text-based vignettes for a situational judgment test measuring cultural intelligence. Initial evidence suggests that performance on this situational judgment test of metacognitive cultural intelligence predicts peer-rated task performance in multicultural teams (Rockstuhl et al., 2013a) as well as supervisor-rated task performance in Filipino offshoring professionals (Rockstuhl et al., 2013b).

#### *Combining complementary measures of cultural intelligence*

We suggest that different measures of cultural intelligence provide complementary information. In particular, divergence between different measures of the same construct more likely reflects different but theoretically meaningful aspects of a construct rather than mere bias.

If different measures of the same construct reflect theoretically meaningful aspects instead of bias, then different measures should predict outcomes incrementally over and above each other. Research across a variety of domains shows again and again that self-reports predict performance over and above alternative measures of the same construct. For example, in the domain of general cognitive ability, self-reported intelligence predicts academic achievement even after controlling for standardized tests of intelligence (Chamorro-Premuzic et al., 2010). Similarly, meta-analyses show that self-reported emotional intelligence incrementally predicts job performance (Joseph and Newman, 2010) over and above ability-based tests of emotional intelligence. Even in the domain of attitudes, self-reported measures predict actual behavior over and above nonconscious tests of the same attitudes (Greenwald et al., 2009).

Measures of cultural intelligence appear to follow a similar pattern. For example, Rockstuhl et al. (2013a) found that self-reported metacognitive cultural intelligence incrementally predicted task performance in multicultural teams beyond a situational judgment test of metacognitive cultural intelligence and other intelligence, personality, and experience predictors. This suggests that different measures of cultural intelligence reflect theoretically meaningful aspects of a person's cultural intelligence instead of mere bias. In light of such findings, we propose that different measures of cultural intelligence should be used conjointly to provide a more complete assessment of a person.

### **Nomological Network of Cultural Intelligence**

The cultural intelligence construct has received worldwide interest. Empirical studies on cultural intelligence have been conducted in North America, South America, Europe, the Middle East, Asia, Australia, and New Zealand. Samples

include expatriates, international business travelers, foreign laborers, global domestics, and international students. Altogether, cultural intelligence studies have sampled people from or working in at least 40 different countries.

Across these samples, scholars have studied (1) antecedents of cultural intelligence, (2) outcomes of cultural intelligence, (3) cultural intelligence as a mediator, (4) cultural intelligence as a moderator, and (5) boundary conditions of cultural intelligence effects. To date, three major reviews have integrated empirical research on cultural intelligence - Ang et al. (2011) in the *Cambridge Handbook of Intelligence*, Ng et al. (2012) in *Conducting Multinational Research: Applying Organizational Psychology in the Workplace*, and Ang et al. (2013) in the *Annual Review of Organizational Psychology and Organizational Behavior*. Below, we summarize empirical findings.

#### *Antecedents of cultural intelligence*

Research on antecedents of cultural intelligence has examined dominantly personality traits and international experiences. As noted above, personality traits could relate to cultural intelligence because traits are broad and relatively stable individual differences that affect choices of behaviors and experiences, which in turn can influence cultural intelligence. Among the Big-5 personality traits, openness to experience relates to all four cultural intelligence factors consistently across studies. Openness to experience refers to a person's tendency to be creative, imaginative, and adventurousness (Costa and McCrae, 1992). Cultural intelligence is a set of capabilities targeted at novel and unfamiliar intercultural situations. Openness to experience and cultural intelligence should be positively related because both pertain to novel situations.

In contrast to the consistent findings for openness to experience, the findings for other Big-5 personality traits are more equivocal. For example, one study found that extraversion was the second most important personality predictor of cultural intelligence, whereas another study found that conscientiousness was the second most important predictor of cultural intelligence.

Beyond the broad Big-5 personality traits, studies have also examined narrower traits as predictors of cultural intelligence. For example, of the six subfacets of openness to experience (i.e., intellectual efficiency, ingenuity, curiosity, aesthetics, tolerance, and depth), tolerance and curiosity predicted cultural intelligence the strongest. Other research has linked narrower traits, such as (a) need for closure, (b) traits from the Multicultural Personality Questionnaire (i.e., emotional stability, social initiative, open-mindedness, cultural empathy, and flexibility), or (c) traits from the Cross-Cultural Adaptability Inventory (i.e., flexibility/openness, emotional resilience, perceptual acuity, and personal autonomy) to overall cultural intelligence.

Regarding international experiences, scholars have examined both work-related and nonwork-related international experiences. However, findings have not been consistent across the four cultural intelligence factors. In one study, the number of countries someone had previously worked in related positively to metacognitive and motivational CQ. In another study, the same measure of international experience related to metacognitive, cognitive, and behavioral cultural intelligence. Another study found that the length of international work experiences related to cognitive cultural intelligence only.

For nonwork-related international experiences, the number of countries visited related positively to all four cultural intelligence factors in one study, whereas the length of stay predicted metacognitive and cognitive cultural intelligence only.

Another study found that the number of educational experiences abroad related positively to both cognitive and behavioral cultural intelligence, but the number of countries visited related only to motivational cultural intelligence.

Other studies have examined the effects of specific programs and interventions on the development of cultural intelligence. For example, participating in a four-week virtual team project with team members from five countries increased team members' motivational, metacognitive, and behavioral cultural intelligence. Another program designed international experiences based on experiential learning and social contact principles. In this program, the time spent interacting with culturally diverse others predicted increases in cultural intelligence for participants. Other studies have replicated the benefits of time spent interacting with culturally diverse others for the development of cultural intelligence.

Outside of personality traits and international experiences, few antecedents of cultural intelligence have been studied. Exceptions include language skills and global identity – both of which relate positively to cultural intelligence.

#### *Outcomes of cultural intelligence*

Research accumulates that shows that cultural intelligence relates to a wide range of cognitive, affective, and behavioral outcomes in intercultural contexts. Research shows that metacognitive and cognitive cultural intelligence predict cognitive outcomes stronger than motivational and behavioral cultural intelligence. An important cognitive outcome is cultural judgment and decision making, which refers to the quality of decisions regarding intercultural interactions (Ang et al., 2007). Across multiple samples, metacognitive and cognitive cultural intelligence predicted better cultural judgment and decision making. In a similar vein, metacognitive and cognitive cultural intelligence related positively with perceived cross-border

environment uncertainty, which influences the accuracy of risk assessments in international business ventures.

By contrast, motivational cultural intelligence is the most consistent predictor of affective outcomes in international contexts. To date, the most widely studied affective outcome has been cultural adjustment of sojourners and expatriates, which includes general adjustment (i.e., adjustment to general living conditions in a foreign culture), work adjustment (i.e., adjustment to work in a foreign culture), interactional adjustment (i.e., adjustment to socializing with locals in a foreign culture), psychological adjustment (i.e., feelings of well-being and satisfaction when living in a foreign culture), and socio-cultural adjustment (i.e., being able to fit in or negotiate interactive aspects in a foreign culture).

Fourteen studies have examined these cultural adjustment outcomes. These studies document consistently the benefits of high cultural intelligence on all four forms of cultural adjustment. Across these studies, motivational cultural intelligence is the strongest predictor of all forms of adjustment, i.e., general adjustment, work adjustment, interactional adjustment, psychological adjustment, and socio-cultural adjustment.

Beyond cultural adjustment, other studies show that people with higher cultural intelligence experience less culture shock when sojourning to other countries, experience less emotional exhaustion when travelling internationally for business on a consistent basis, report greater intention to complete their expatriate assignments, and report greater satisfaction with their expatriate assignments.

Affective trust in culturally diverse others is another outcome that has received growing attention. Research shows that people are more likely to trust culturally diverse others if (a) they have higher metacognitive cultural intelligence and (b)

culturally diverse others have higher behavioral cultural intelligence. Notably, cultural intelligence influences affective trust only in culturally diverse, but not in culturally homogeneous dyads. These findings highlight the unique relevance of cultural intelligence in intercultural contexts. At the team level, research also shows that multicultural teams with greater average team member cultural intelligence experience greater cohesion than teams with lower average cultural intelligence. A recent study sheds some light on possible mechanisms behind these effects. In particular, American working adults with greater metacognitive cultural intelligence had greater expectations of cooperative or relationship-oriented goals – both for themselves and others – when preparing for an interaction with Chinese counterparts.

Finally, research has studied a wide range of behavioral outcomes of cultural intelligence. Many of these studies use multisource designs and control for a number of alternative predictors, such as general cognitive ability, emotional intelligence, Big-5 personality, and experience-based predictors. Based on levels of specificity, we classify these outcomes broadly into general job performance (including task performance, organizational citizenship behaviors, and adaptive performance), domain-specific performance (including global leadership and negotiation), and specific demonstrated behaviors.

Ten studies show that cultural intelligence predicts task performance in different work contexts, such as global work assignments and work in culturally diverse domestic settings. Across these studies, metacognitive and behavioral cultural intelligence appear to be stronger predictors of task performance than motivational and cognitive cultural intelligence. These studies use self-reported measures of cultural intelligence. Two recent studies show that a situational judgment test of metacognitive cultural intelligence likewise predicts task performance in multicultural

teams and for Filipino offshoring professionals. While task performance remains the most widely studied performance outcome to date, studies have also shown that cultural intelligence predicts organizational citizenship behaviors such as helping, as well as adaptive performance. At the team level, empirical evidence suggests that average team members' cultural intelligence predicts performance of multicultural teams and creative performance both in intercultural dyads and multicultural teams.

A number of studies have related cultural intelligence to global leadership. Several qualitative studies highlight the crucial role that cultural intelligence plays in managing subordinates and offshoring vendors from different cultural backgrounds. Quantitative studies confirm the importance of cultural intelligence for global leaders. Specifically, studies show that cultural intelligence predicts (1) subordinate-rated leader performance in multicultural teams, (2) peer-rated leadership emergence in multicultural teams, (3) peer-rated cross-border leadership effectiveness but not general leadership effectiveness, and (4) peer-rated international leadership potential. At the dyadic level, cultural intelligence of the lower of two negotiation partners predicts the joint profits in intercultural negotiation pairs.

Recent studies have also begun to illuminate more specific or proximal behaviors that culturally intelligent people exhibit. For example, non-native English speakers with higher cultural intelligence tend to interact more frequently with native English speakers, even after controlling for the ability to speak multiple languages. Other studies show that individuals with high rather than low metacognitive cultural intelligence more frequently engage in information sharing with culturally diverse others. They also tend to engage in more cooperative behaviors with culturally diverse others in mixed motive or prisoner's dilemmas. Similarly, individuals with higher cultural intelligence engage in more information sharing and cooperative/relationship

management behaviors in intercultural negotiations. Perhaps as a result of such communication and cooperation behaviors, people with higher cultural intelligence also tend to develop larger and more culturally diverse social networks than people with lower cultural intelligence. Mirroring these individual-level results, cultural intelligence at the team-level promotes fusion teamwork behaviors – i.e., teamwork behaviors that encourage meaningful participation and co-existence of different cultures – and integration of new members into multicultural teams.

#### *Cultural intelligence as a mediator*

As noted above, personality and international experience are widely studied as antecedents of cultural intelligence. Consequently, research has tested cultural intelligence as a mediator of the effects of these distal predictors on outcomes such as cultural adjustment, job performance, and global leadership. Empirical studies show that cultural intelligence mediates the effects of personality traits. For example, cultural intelligence mediated the effects of Multicultural Personality traits on general adjustment in a sample of international students in New Zealand. In a sample of expatriates in Malaysia, cultural intelligence mediated the effects of openness to experience on job performance. Cultural intelligence also mediated the effects of the Big-Five dimension of openness to experience on adaptive performance in undergraduate exchange students in New Zealand.

Cultural intelligence also mediates effects of international experience. In a study of Korean expatriates, cultural intelligence mediated the effects of previous international experience and predeparture cross-cultural training on cross-cultural adjustment. In a study of culturally diverse MBA students, cultural intelligence also mediated the effects of international experience on international leadership potential.

Finally, one study showed that cultural intelligence mediated the effects of a three-way interaction between home-country identity, host-country identity, and global identity on leadership emergence in multicultural teams.

#### *Cultural intelligence as a moderator*

Two studies have examined cultural intelligence as a moderator. In a study of senior expatriate leaders in various European countries, higher cultural intelligence of the leader strengthened the positive relationship between the leader's visionary transformational leadership style and organizational innovation. In other words, leaders with high cultural intelligence magnified the effects of leadership on innovation at the organizational level.

Another study found that cultural intelligence moderated the effects of perceived cultural diversity on voice instrumentality (i.e., perceptions that voicing behaviors will lead to desired organizational changes), which in turn affected actual voice behaviors. In particular, although cultural diversity lowered voice instrumentality for individuals with low cultural intelligence, it increased voice instrumentality for individuals with high cultural intelligence.

#### *Boundary conditions of the effects of cultural intelligence*

More recent studies refine theoretical arguments about cultural intelligence effects and examine boundary conditions of cultural intelligence. Such studies have examined boundary conditions both for effects of international experience on cultural intelligence and for effects of cultural intelligence on outcomes.

In light of the inconsistent effects of international experience on cultural intelligence, scholars have advanced a number of boundary conditions of these effects. One study found that positive effects of work-related international experience on cultural intelligence were stronger for people with a divergent rather than a

convergent learning style. Similarly, another study found that positive effects of nonwork international experiences were strongest when people had high mastery goal orientations and low performance avoidance orientations in intercultural contexts. Other studies have found that effects of intercultural contact on cultural intelligence were stronger for (a) people with greater self-efficacy, (b) majority rather than minority members, and (c) for people who had their first rather than subsequent intercultural service learning experiences.

Recent research also demonstrates the crucial role of cultural capital (i.e., international education and international experiences of one's parents) in fostering positive relationships between international experience and cultural intelligence. Two related studies found that cultural capital strengthened the indirect effects of international experience on global leadership via cultural intelligence. In particular, international experience related positively to cultural intelligence only when cultural capital was high. Cultural intelligence in turn predicted (a) supervisor-rated international military officer potential, and (b) peer-rated leadership emergence in multicultural teams.

Research on boundary conditions of the effects of cultural intelligence on outcomes has hypothesized and tested both suppressors and enhancers of effects of motivational cultural intelligence. For example, G. Chen et al. (2010) found that subsidiary support, i.e., the extent to which the subsidiary helps expatriates adapt to their assignments and provides them with career and financial support, reduced the effect of motivational cultural intelligence on work adjustment and subsequently performance. Likewise, cultural distance, i.e., the extent to which the culture of the host country of the subsidiary is novel or different from expatriates' home countries,

weakened the effects of motivational cultural intelligence on work adjustment and performance.

By contrast, X.-P. Chen et al. (2012) focused on contextual variables that enhance the effects of individual motivational cultural intelligence. These authors found that the relationship between motivational cultural intelligence and cultural sales (number of sales transactions involving clients from cultures different from the employee's own) was stronger (a) when firm diversity climate, i.e., employees' shared perceptions to which their firm values diversity within the firm was stronger; and (b) when firm motivational cultural intelligence, i.e., the firm's capacity to direct attention and energy toward learning about and functioning effectively in cross-cultural situations, was higher. Together, these studies begin to illuminate crucial contextual boundary conditions of cultural intelligence effects.

### **Recent Theoretical Extensions**

The wealth of empirical research reviewed above demonstrates the value of cultural intelligence for individuals working in culturally diverse settings. Given these promising findings, cultural intelligence researchers have begun their foray into new conceptual grounds. These conceptual extensions include the conceptualization of cultural intelligence sub-dimensions, proposed neurological correlates of cultural intelligence, and the conceptualization of cultural intelligence as an organizational-level capability.

#### *Conceptualization of cultural intelligence sub-dimensions*

Recently, Van Dyne et al. (2012) expanded the four-factor model of cultural intelligence and proposed sub-dimensions within each cultural intelligence factor. Particularly, metacognitive cultural intelligence consists of sub-dimensions of planning, awareness, and checking. Cognitive cultural intelligence consists of the sub-

dimensions of culture-general knowledge and context-specific knowledge.

Motivational cultural intelligence consists of sub-dimensions of self-efficacy, intrinsic interest, and extrinsic interest in cross-cultural encounters and experiences.

Behavioral cultural intelligence consists of sub-dimensions of flexibility in verbal behaviors, non-verbal behaviors, and speech acts.

Mirroring trends in personality research to move from the Big Five traits to narrower traits, the expanded cultural intelligence conceptualization aims to make three primary contributions. First, considering sub-dimensions allows for more precise matching of cultural intelligence predictors and outcomes and should improve predictive validities. We base this expectation on Ajzen's (2005) principle of compatibility. In general, Ajzen proposed that relationships between predictors and criteria are stronger when constructs match in terms of their breadth, target, context, time, or action. Indeed, broad cultural intelligence factors are good predictors of general performance in intercultural contexts (Ang et al., 2007), whereas narrower cultural intelligence sub-dimensions are better predictors of narrower outcomes. For example, Chua et al. (2012) found that metacognitive awareness in particular predicted creativity in intercultural dyads.

Second, specifying sub-dimensions facilitates more nuanced theorizing, especially in terms of explicating the underlying processes of cultural intelligence (Ang et al., 2013). A more nuanced understanding of cultural intelligence is especially useful for identifying concrete ways to train cultural intelligence. Delineating sub-dimensions translates cultural intelligence from an abstract concept into a recipe of explicit and actionable cultural intelligence steps. For example, verbal behavioral cultural intelligence involves vocal flexibility, such as flexibility in tone and accent.

Understanding explicit and actionable cultural intelligence steps in turn makes

cultural intelligence particularly amenable to designing training interventions. Thus, trainings of verbal behavioral cultural intelligence might target vocal training that emphasizes flexibility in tone and accent.

Finally, although cultural intelligence refers to a general set of intercultural capabilities, the sub-dimension of context-specific knowledge (i.e., culture-specific knowledge and/or domain-specific knowledge) represents a foray into more contextualized forms of cultural intelligence. Whereas other sub-dimensions of cultural intelligence facilitate individual functioning across culturally diverse settings, context-specific knowledge facilitates individual functioning in specific intercultural contexts. For example, leadership-specific knowledge should predict outcomes related to cross-cultural leadership performance only. Likewise, Japan-specific knowledge should predict outcomes related to performance in Japanese contexts only. The value of conceptualizing contextualized forms of cultural intelligence is that they are likely to be more proximal, and hence more powerful, determinants of outcomes in specific intercultural contexts.

#### *Neurological correlates of cultural intelligence*

Sternberg and Detterman's (1986) integrative framework on intelligence includes biological loci intelligence. Research focusing on biological loci of intelligence considers intelligence in terms of structural aspects (e.g., hemispheres of the brain), process aspects (e.g., the neuronal processes that give rise to brain activities), or the interaction between structure and process (e.g., how particular regions of the brain generate particular brain activities).

Drawing on the interactionist view and findings from sociocognitive neuroscience, Rockstuhl et al. (2010) advanced theoretical foundations of the culturally intelligent brain. In particular, these authors proposed distinct cortical

regions as neurological correlates of metacognitive, motivational, and behavioral cultural intelligence.

Metacognitive CQ requires cognitive processes of self-reflection and person perception or inference of mental states in culturally diverse others. Processes of self-reflection and mental state inference correlate with cortical activity in the anterior rostral medial frontal cortex (arMFC), which includes the paracingulate cortex. Hence, activity in the arMFC likely mediates metacognitive cultural intelligence.

Motivational cultural intelligence requires cognitive processes involved in being sensitive to incentive structures associated with behavioral choices in intercultural contexts. Processes of monitoring the value and expectancies of outcomes associated with behavioral choices correlate with cortical activity in the orbitofrontal cortex (oMFC). Thus, activity in the oMFC may mediate motivational cultural intelligence.

Behavioral cultural intelligence requires cognitive processes of inhibiting a prepotent but culturally ethnocentric response. To inhibit culturally ethnocentric responses, individuals with high behavioral cultural intelligence continuously monitor and control their behavior to ensure its situational appropriateness. The posterior rostral medial frontal cortex (prMFC) and dorsal anterior cingulate cortex (dorsal ACC) mediate processes of monitoring and controlling behavior. Thus, activity in the prMFC and dorsal ACC potentially underlie behavioral cultural intelligence.

Beyond these mappings of cortical regions to dimensions of cultural intelligence, Rockstuhl et al. (2010) also advanced the neural tuning hypothesis of cultural intelligence. In essence, this hypothesis states that (a) neurological responses can change as individuals adapt to new cultural contexts; and (b) people with higher overall cultural intelligence exhibit greater neurological flexibility in response to varying demands across cultural contexts.

*Cultural intelligence as organizational-level capabilities*

Initial work conceptualized cultural intelligence as an individual-level capability; and later work also include team-level capabilities. Recent work has advanced notions that organizations too vary in their level of cultural intelligence.

Ang and Inkpen (2008) discussed organizational-level cultural intelligence in the context of offshore outsourcing companies. They argued that offshore ventures with high rather than low organizational cultural intelligence manage their offshore vendors better; which in turn increases performance of offshoring ventures.

Organizational cultural intelligence in this model comprises of managerial cultural intelligence, competitive cultural intelligence, and structural cultural intelligence.

Managerial cultural intelligence refers to cultural intelligence of the top management team and project managers of the offshoring venture. Competitive cultural intelligence refers to organizational processes and routines that allow the organization to manage competitive factors associated with offshoring, such as the loss of skills and reputational risks. Structural cultural intelligence refers to the way the organization structures reporting relationships and communication with its offshore vendor.

Moon (2010) conceptualized organizational cultural intelligence as a set of processes, positions, and path capabilities in the context of international expansion. Process capability refers to the capability to adapt a firm's routines and practices, structures, and resource transformation process continuously to changing cultural environments. Position capability refers to a firm's inimitable resources, including critical assets, knowledge, or capabilities in the cross-cultural context. Path capability refers to a firm's capability to minimize organizational inertia preventing it from adjusting its internal and external competences to changing business environments.

Both models of organizational-level cultural intelligence await further empirical testing.

X.-P. Chen et al.'s (2012) investigated organizational level motivational cultural intelligence as a contextual moderator of individual-level cultural intelligence effects. These authors conceptualized motivational cultural intelligence at the organizational-level based on a referent-shift model. Empirically, motivational cultural intelligence at the organizational level strengthened the individual-level relationship between motivational cultural intelligence and cultural sales of real estate agents.

### **Conclusion And Future Research**

Cultural intelligence refers to the capability or potential to function effectively across varying cultural contexts. Cultural intelligence research has demonstrated that cultural intelligence is a distinct capability that accounts for significant performance variance in intercultural contexts. Future research needs to validate recent theoretical extensions, in particular, the sub-dimensions of cultural intelligence, neurological correlates of cultural intelligence, as well as organizational-level conceptualizations of cultural intelligence. We also expect to see an increasing diversity in the measurement of cultural intelligence. One such direction includes the development of direct behavioral assessments of cultural intelligence, such as assessment centers. Finally, we note that studies of team-level cultural intelligence remain rare and require more conceptual and empirical work. For example, future work could explore team composition models of cultural intelligence (i.e., how should cultural intelligence within a team be distributed?), as well as processes and norms associated with high team cultural intelligence.



**Cross References**

Emotion, Perception and Expression of

Emotional Intelligence and Competencies

Five Factor Model of Personality, Biological Bases of

Five Factor Model of Personality, Facets of

Implicit Association Test

Intelligence: Assessments of

Intelligence: Central Conceptions and Psychometric Models

Intelligence: Historical and Conceptual Perspectives

Openness to Experience

Personality, Biological Models

Personality, Trait models of

Self-efficacy

Situational Judgment Test

Social Intelligence and Competencies

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