



Sub-Dimensions of the Four Factor Model of Cultural Intelligence: Expanding the Conceptualization and Measurement of Cultural Intelligence

Linn Van Dyne^{1*}, Soon Ang², Kok Yee Ng², Thomas Rockstuhl²,
Mei Ling Tan², and Christine Koh²

¹ *Michigan State University*

² *Nanyang Technological University*

Abstract

Cultural intelligence (CQ) – the capability to function effectively in intercultural settings – has gained increasing attention from researchers and practitioners due to its contemporary relevance to globalization, international management, and workforce diversification. Research-to-date demonstrates that CQ predicts a variety of important outcomes in intercultural contexts, such as cultural adaptation, expatriate performance, global leadership, intercultural negotiation, and multicultural team processes. Moving beyond past research that tends to focus on the four primary factors of CQ – metacognitive CQ, cognitive CQ, motivational CQ, and behavioral CQ, we introduce an expanded conceptualization of CQ that delineates sub-dimensions for each of the four factors. We briefly review psychometric evidence supporting the proposed second order 11-factor structure and convergent/discriminant validity of the sub-dimensions. We propose that the next wave of CQ research should be guided by a deeper understanding of each of four factors of CQ.

Cultural intelligence (CQ) has gained increasing attention from researchers in the area of intercultural management studies (Ng & Earley, 2006). With the increasing globalization of organizations and diversification of domestic workforces, understanding why some individuals function more effectively than others in culturally diverse situations has become more important than ever (Gelfand, Erez, & Aycan, 2007). Earley and Ang (2003) introduced the concept of CQ – defined as the capability of an individual to function effectively in culturally diverse settings. Drawing upon Sternberg and Detterman's (1986) multi-loci theory of intelligence, Ang and Van Dyne (2008) conceptualized CQ as a four-factor construct that includes metacognitive, cognitive, motivational, and behavioral dimensions.

To date, most CQ theory and empirical research has focused on the four factors of CQ and has relied on the 20-item Cultural Intelligence Scale (CQS) (Ang et al., 2007). This measure has gone through an extensive validation process, and research demonstrates that it is generalizable across a) multiple student and executive samples (Ang et al., 2007; Van Dyne, Ang, & Koh, 2008), b) time intervals ranging from four weeks (Shokef & Erez, 2008) to four months (Van Dyne et al., 2008), c) countries such as Singapore (Ang et al., 2007; Van Dyne et al., 2008), the U.S. (Ang et al., 2007; Van Dyne et al., 2008), Ireland (Shannon & Begley, 2008), and d) both global and domestic culturally diverse samples (Kim, Kirkman, & Chen, 2008; Shokef & Erez, 2008). In addition, research demonstrates the value and predictive validity of self-report and observer-report versions of the scale (Kim & Van Dyne, forthcoming; Van Dyne et al., 2008).

Indeed, initial CQ research has been very promising. In a recent review of this literature for the *Cambridge Handbook on Intelligence*, Ang, Van Dyne, and Tan (2011) summarized research that shows CQ predicts a range of outcomes in intercultural contexts. These include cultural adaptation (Templer, Tay, & Chandrasekar, 2006), expatriate job performance (Chen, Kirkman, Kim, Farh, & Tangirala, 2010), global leadership (Rockstuhl, Seiler, Ang, Van Dyne, & Annen, 2011), intercultural negotiation effectiveness (Imai & Gelfand, 2010), and team processes in multicultural teams (Groves & Feyerherm, 2011; Rockstuhl & Ng, 2008). This existing theoretical and empirical work has established a firm foundation for research on cultural intelligence.

To date, however, as noted by Gelfand, Imai, and Fehr (2008) in their commentary on the *Handbook of Cultural Intelligence*, the CQ construct has been in “a very embryonic state” as far as theorizing and research on the factors (p. 379). This is an important gap in the literature because a more nuanced model that identifies sub-dimensions would serve “a number of valuable scientific functions, most notably providing a theoretical and coherent synthesis heretofore not available in the multicultural competency literature” (p. 379).

We note that initial research on new constructs typically focuses on more global conceptualizations. Then, over time, more narrow conceptualizations are advanced which elucidate sub-dimensions that allow more refined theorizing and testing. For example, the Big Five traits represented a significant advance in personality research because the approach provided an integrative organizing framework that allowed scholars to focus on five specific traits instead of somewhat randomly selecting from the vast array of individual difference characteristics (Digman, 1990). Further advancing research, scholars moved beyond an exclusive emphasis on the five factors and argued that focusing on more narrow conceptualizations could provide insights into meaningful differences in sub-dimensions of the five factors (Paunonen & Jackson, 2000; Schneider, Hough, & Dunnette, 1996). This was an important step because it allowed more refined understanding of the meaning of specific aspects of personality and it also facilitated more nuanced models of personality (e.g., see Ashton, 1998; Moon, 2001; Roberts, Chernyshenko, Stark, & Goldberg, 2005).

Responding to this important gap, we draw on existing research to identify sub-dimensions for each of the four primary factors of cultural intelligence. Thus, we draw specifically on research on metacognition (O’Neil & Abedi, 1996; Pintrich & De Groot, 1990) to delineate planning, awareness, and checking as sub-dimensions of metacognitive CQ. For cognitive CQ, we differentiate culture-general knowledge from context-specific knowledge (Cushner & Brislin, 1996; Murdock, 1987). We draw on contemporary motivational perspectives to identify intrinsic and extrinsic interest (Deci & Ryan, 1985) and self-efficacy (Bandura, 2002) as sub-dimensions of motivational CQ. Finally, we identify flexibility in verbal and non-verbal behaviors as well as speech acts (Hall, 1959, 1976; Spencer-Oatey, 2008) as key sub-dimensions of behavioral CQ. In sum, going beyond prior CQ research, we advance a more refined theoretical conceptualization of cultural intelligence that delineates sub-dimensions for each of the four primary factors of CQ.

By delineating sub-dimensions, we respond to recent calls for conceptual refinements of CQ and instruments that measure sub-dimensions of the four CQ factors (Ang et al., 2011; Gelfand et al., 2008). This expanded framework provides a better articulated conceptual space for each of four factors of cultural intelligence which should facilitate future research by providing more depth to the conceptualization of each factor of cultural intelligence. We also summarize the evidence for the proposed structure of CQ based on

a recent study of the psychometric properties of the expanded cultural intelligence scale (the E-CQS) that assesses eleven sub-dimensions. This should facilitate research on nuances within a particular aspect of CQ – such as the nomological network of metacognitive CQ. For example, some research has already begun to focus specifically on motivational CQ (Chen, Liu, & Portnoy, 2012; Chen et al., 2010), but cannot shed insights into potential differences in intrinsic versus extrinsic motivational forces without a more nuanced model that differentiates sub-dimensions of motivational CQ. We also aim to contribute to practice because each of the sub-dimensions suggests specific capabilities that people can consider when they reflect on their own cultural intelligence and that of others. By focusing, for example, on different aspects of motivational CQ, people can set more specific self-development goals that should, in turn, help them to enhance their effectiveness in culturally diverse settings. Likewise, knowledge of sub-dimensions for each of the primary factors of CQ should allow trainers and coaches to provide more depth to the feedback they provide to employees and clients.

Conceptualization of CQ

CQ is an individual's capability to detect, assimilate, reason, and act on cultural cues appropriately in situations characterized by cultural diversity. Thus, it is domain-specific and has special relevance to multicultural settings and global contexts (Earley & Ang, 2003). By definition, CQ is a malleable capability that can be enhanced by active engagement in education, travel, international assignments, and other intercultural experiences (Ang & Van Dyne, 2008; Ng, Van Dyne, & Ang, 2009). CQ complements other forms of intelligence, such as IQ (general mental ability; Schmidt & Hunter, 2000), EQ (emotional intelligence; Mayer & Salovey, 1993), social intelligence (Thorndike & Stein, 1937), and practical intelligence (Sternberg et al., 2000) because intelligence is more than the ability to grasp concepts and solve problems in academic settings (Ackerman, 1996; Gardner, 1993; Sternberg & Detterman, 1986). These forms of intelligence are complementary because norms for social interaction vary from culture to culture and neither cognitive intelligence nor emotional intelligence focuses specifically on capabilities with unique relevance to effectiveness in cross-cultural settings (see Rockstuhl et al., 2011, for empirical research that contrasts IQ, EQ, and CQ in cross-border leadership).

Cultural intelligence as a multidimensional construct with four factors

Earley and Ang (2003) positioned CQ as multidimensional based on Sternberg and Detterman's (1986) multiple loci of intelligence framework. Specifically, Sternberg (1986) synthesized disparate and previously disconnected views on intelligence by proposing four interrelated ways to understand individual-level intelligence: metacognitive intelligence, cognitive intelligence, motivational intelligence, and behavioral intelligence. Metacognition and cognition are *mental* capabilities that represent cognitive functioning of the individual. Motivation is another *mental* capability and acknowledges the cognitive processes of drive and choice as another important locus of intelligence. In contrast to metacognitive, cognitive, and motivational intelligence – which involve mental functioning, behavioral intelligence refers to the behavioral capability to flex motor skills and display a range of verbal and nonverbal actions.

Applying this notion of different loci of intelligence to culturally diverse contexts, Ang and Van Dyne (2008) identified four fundamental factors of CQ. Metacognitive CQ reflects the mental capability to acquire and evaluate cultural knowledge. It focuses on

awareness and monitoring of cognitive processes (Flavell, 1979). Cognitive CQ reflects general knowledge and knowledge structures about cultures and cultural differences. It is consistent with Ackerman's (1996) intelligence-as-knowledge concept which makes analogous arguments for the importance of knowledge as part of intellect. Motivational CQ reflects the mental capacity to direct and sustain energy toward functioning and performing in intercultural situations. It addresses the motivated nature of conscious cognition (Kanfer, forthcoming) that is critical for "real-world" problem solving (Ceci, 1996). Behavioral CQ reflects the capability to flex behaviors to fit different cultural contexts. It focuses on the capacity to exhibit outward manifestations or overt actions (Sternberg & Detterman, 1986) that are appropriate for putting other at ease during intercultural interactions.

The Sub-Dimensions of CQ

Extending prior work, we now present a more refined conceptualization that introduces sub-dimensions for each of the four factors of CQ. Specifying eleven sub-dimensions as an expanded conceptualization of the original four-factor model produces a second order model where the sub-dimensions are nested hierarchically underneath the primary factors. This new framework includes three sub-dimensions for metacognitive CQ, two for cognitive CQ, three for motivational CQ, and three for behavioral CQ – for a total of eleven sub-dimensions. We describe each set of sub-dimensions and briefly summarize psychometric characteristics of the Expanded Cultural Intelligence Scale (the E-CQS).

Sub-dimensions of metacognitive CQ

Metacognitive CQ refers to an individual's level of conscious cultural awareness and executive processing during cross-cultural interactions (Ang & Van Dyne, 2008). It is based on high-level cognitive strategies and deep information processing (Flavell, 1979; Nelson, 1996; O'Neil & Abedi, 1996; Pintrich & De Groot, 1990) that allow individuals to develop heuristics for social interaction across cultural contexts (Briñol & DeMarree, 2011).

As Triandis (2006) pointed out, individuals with high metacognitive CQ have heightened consciousness of how their own culture influences their behavior and their interpretation of intercultural situations. They also know the importance of preparing or planning for intercultural interactions by exposing themselves to different cultural norms, for example, through cross-cultural training programs, prior to engaging in intercultural interactions. During intercultural interactions, they actively check to see if their interpretations are consistent with the intentions of others. Triandis refers to this as isomorphic attributions. Heightened awareness and checking activate self-regulated mental processes that individuals use to acquire and understand knowledge (Flavell, 1979) relating to culture. Thus, it includes self-awareness, other-awareness, and situational awareness (Endsley, 1995; Sheldon, 1996; Triandis, 2006).

Given our conceptualization of CQ as a malleable individual difference, we draw on O'Neil and Abedi's (1996) State Metacognitive Inventory (SMI) to identify sub-dimensions of metacognitive CQ. The SMI captures specific metacognitive constructs as well as the state (as opposed to trait) aspect of metacognition. The SMI extends work of Pintrich and De Groot (1990), who viewed metacognition as strategies for planning, monitoring, and modifying cognitions by adding awareness because "there is no metacognition without being consciously aware of it" (p. 235). We concur with their emphasis on

awareness (self-, other-, and situational-) in the context of intercultural interactions. O'Neil and Abedi also subsumed Pintrich and De Groot's constructs of monitoring and modifying into one single construct, which they labeled as checking. Other researchers who have used the SMI (e.g., Legg & Locker, 2009) have adapted items for specific samples and settings (e.g., Heydenberk & Heydenberk, 2005; Mok, Fan, & Pang, 2007). In sum, we focus on three specific metacognitive self-regulated mental processes. These are planning, awareness, and checking.

Planning is defined as strategizing before a culturally diverse encounter (e.g., Bell & Kozlowski, 2008; Jacobs & Paris, 1987). It includes advance preparation such as thinking carefully about short-term and long-term objectives. It also includes developing action plans for specific steps to take in specific cultural contexts. Planning is based on thinking deeply about a culture and anticipating what needs to be done in advance of the interaction. Planning can relate to the self (What can I do to achieve what I want?), others (What might they do to achieve what they want?), and the resulting interdependence (How might our actions affect what we can achieve in this situation?). Planning primes people to take the perspective of culturally diverse others before the intercultural event and anticipate how they might respond to different approaches (Goldman, 1993). Carefully anticipating and thinking about the actions of others and the particular cultural context enhances understanding, especially in novel situations (Endsley, 1995; Schmidt & Ford, 2003).

Awareness is defined as knowing about cultural thinking and knowledge of self and others in real time (e.g., Flavell, 1979; Ridley, Schutz, Glanz, & Weinstein, 1992). While planning focuses on anticipatory consciousness, awareness describes the degree to which people have real-time consciousness of how culture influences (i) their own mental processes and behaviors; (ii) the mental processes and behaviors of others in intercultural interactions; and (iii) the intercultural situation. Awareness includes being cognizant of your own cultural habits and how you use your cultural knowledge when interacting with those from different cultural backgrounds (e.g., Haller, Child, & Walberg, 1988; Sitzmann, Bell, Kraiger, & Kanar, 2009; Sitzmann & Ely, 2011). It includes consciously suspending judgments until enough information is available for making sense of intercultural interactions. It includes being conscious of how cultural aspects of the situation might be influencing personal behavior and the behaviors of others. Finally, it also includes being proactive and taking the perspective of culturally diverse others. Hence, awareness includes the capability of making sense of self, others, and the situation in specific cultural contexts.

Checking is defined as reviewing assumptions and adjusting mental maps when actual experiences differ from expectations (e.g., Bell & Kozlowski, 2008; Jacobs & Paris, 1987). This component of metacognitive CQ involves thinking about and questioning deep-seated assumptions and adjusting mental models based on new inputs. Checking involves comparing expectations and actual occurrences during inter-cultural interactions. It can be a function of conscious reflection (Keith & Frese, 2005) and/or unconscious associative learning (Bubic, von Cramon, & Schubotz, 2010). It includes evaluating the extent to which mental schemas and expectations are consistent with how specific others behave in real situations and adjusting knowledge structures accordingly. This adjustment process requires checking personal cultural assumptions, checking assumptions made about culturally diverse others, and checking interpretations after the interaction.

When the metacognitive CQ sub-dimensions are activated, people with higher metacognitive CQ consciously question their own cultural assumptions and the assumptions they have about culturally diverse others. They plan ahead, reflect on what is happening

(and not happening) during interactions, and adjust their mental models based on their interactions. For example, a manager with individualistic cultural values who has high metacognitive CQ would anticipate that those with collectivistic cultural values would prefer to caucus and discuss options together before making a group decision. Accordingly, this high CQ manager would plan for and allow extra time for the decision making process. Likewise, a manager with collectivistic cultural values who has high metacognitive CQ would expect that those with individualistic cultural values would typically prefer to make decisions on the spot and might not take the time to involve others in discussion. During interactions, both of these high CQ managers would check if their expectations were accurate and if not would adjust their strategies to incorporate preferences and cultural values of those with different cultural values. Consistent with this, Savani, Morris, Naidu, Kumar, and Berlia (2011) demonstrated that despite culturally bounded behavioral tendencies, people updated their biases when they encountered and reflected upon cross-cultural experiences. Specifically, results showed that even though Indians were more likely than Americans to accommodate during interpersonal influence attempts within their own cultures, exposure to influence situations from the other culture changed participants' default decisions when they reflected on and adapted to cultural differences. Savani et al.'s study also illustrates the importance of the sub-dimensions of metacognitive CQ, with special emphasis on the benefits of awareness and checking for cultural learning.

Together, the three sub-dimensions of metacognitive CQ emphasize the dynamic nature of cultural intelligence. Planning should generally occur before interactions. Awareness should be ever present. Checking should occur during and after interactions. Taken as a whole, these sub-dimensions represent a critical component of CQ because they represent proactively thinking about people and situations in intercultural settings (planning), challenging rigid reliance on culturally-bounded habits and thinking (awareness), and revising mental models and adapting strategies so they are culturally appropriate and more likely to achieve desired outcomes in intercultural encounters (checking). The Expanded Cultural Intelligence Scale (E-CQS) includes the three sub-dimensions of metacognitive CQ. Sample items are included in Table 1.

Sub-dimensions of cognitive CQ

Cognitive CQ refers to an individual's knowledge structures about cultural institutions, norms, practices and conventions in different cultural settings. Understanding the elements that constitute the cultural environment helps individuals appreciate how the systems shape and cause patterns of behaviors and interactions within a culture, and why behaviors and interactions differ across different cultural environments (Ang & Van Dyne, 2008). This understanding is important for making isomorphic attributions of behaviors observed in different cultural contexts and it is critical for sound judgments and decision-making in culturally diverse settings (Ang et al., 2007).

We draw on cultural anthropology (Brown, 1991; Murdock, 1987) and the cross-cultural training literature (Bhawuk & Brislin, 2000) to delineate aspects of cultural knowledge that facilitate effectiveness in cross-cultural situations (Ang & Van Dyne, 2008). Specifically, this includes (i) culture-general knowledge – declarative knowledge of the major elements that constitute the cultural environment; and (ii) context-specific knowledge – declarative knowledge of how cultural universals are manifested in a specific domain and procedural knowledge of how to be effective in that domain.

Table 1 Example items from the 11-dimension Expanded CQ scale (the E-CQS)¹

| Sub-dimension | Example item |
|----------------------------|--|
| Metacognitive CQ | |
| Sub-dimensions | |
| Planning | I develop action plans before interacting with people from a different culture |
| Awareness | I am aware of how my culture influences my interactions with people from different cultures |
| Checking | I adjust my understanding of a culture while I interact with people from that culture |
| Cognitive CQ | |
| Sub-dimensions | |
| Culture-General Knowledge | I can describe the different cultural value frameworks that explain behaviors around the world |
| Context-Specific Knowledge | I can describe the ways that leadership styles differ across cultural settings |
| Motivational CQ | |
| Sub-dimensions | |
| Intrinsic interest | I truly enjoy interacting with people from different cultures |
| Extrinsic interest | I value the status I would gain from living or working in a different culture |
| Self-efficacy to adjust | I am confident that I can persist in coping with living conditions in different cultures |
| Behavioral CQ | |
| Sub-dimensions | |
| Verbal behavior | I change my use of pause and silence to suit different cultural situations |
| Non-verbal behavior | I modify how close or far apart I stand when interacting with people from different cultures |
| Speech acts | I modify the way I disagree with others to fit the cultural setting |

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

¹© Cultural Intelligence Center 2011. Used by permission of Cultural Intelligence Center.

Cross-cultural training research identifies both culture-general and context-specific knowledge as important (Bhawuk, 1998). Context-specific knowledge is especially useful for engaging in intercultural interactions within a specific context. Gaining context-specific knowledge helps people understand and adapt quickly to the new context (Triandis, 1977). Indeed, training on context-specific knowledge, such as learning about specific aspects of a host country was the focus of early cross-cultural training programs aimed at preparing people to live in a foreign culture. However, in the globalized world, we are more likely to encounter people from several cultures and subcultures than from a single culture. Thus, as Triandis (1977) proposed “learning the full range of cultural variation may in fact prove more efficient in the long run” (p. 21).

Culture-general knowledge is defined as knowledge of the universal elements that constitute a cultural environment. Understanding the general elements that characterize culture is important because it provides people with an organizing framework for thinking about possible ways that cultures might be similar and different.

Triandis (1972) and Stewart and Bennett (1991) describe culture as having both objective and subjective components. Objective culture refers to the observable and visible artifacts and practices of cultures that address fundamental human needs of gathering food and relating to others, the environment, and the universe (Brown, 1991; Murdock, 1987;

Triandis, 1994). This includes knowledge of economic (capitalism versus socialism), legal (formal law versus informal governance), and political systems (monarchy versus democracy); knowledge of the types of traditional cultures (matriarchal and patriarchal), social interaction norms (guanxi), religious beliefs (how to explain the unexplainable), and typical role expectations for males and females (relative power); and socio-linguistic knowledge regarding rules of languages (whether words for objects have gender or are neutral) and rules for expressing non-verbal behaviors (gestures, facial expressions), understanding other languages and dialects (vocabulary), and understanding ways that communication norms differ across cultural contexts (direct versus indirect communication).

Subjective culture refers to the hidden psychological features of cultures that are less visible. This includes the values, beliefs, norms and assumptions that are shared within a society. For instance, values of individualism-collectivism, power distance, uncertainty avoidance, and masculinity-femininity (e.g., Hofstede, 1980; House, Hanges, Javidan, Dorfman, & Gupta, 2004) are common dimensions of subjective culture that have received much attention in cross-cultural psychology.

Context-specific knowledge is defined as declarative knowledge about manifestations of cultural universals in a specific domain and procedural knowledge of how to be effective in that domain. A domain could refer to a specific cultural context such as a particular country or part of the world, as emphasized in area studies (Triandis, 1994). Examples of country-specific cultural knowledge include knowing that Indians tend to be high in power distance; Brazilians tend to be expressive; Japanese tend to use high context communication; or that the United States is more capitalistic and China is more socialistic (see Livermore, 2009, for additional examples).

A domain could also refer to a specific subculture such as business managers, diplomats, peacekeeping forces, educators, or demographic subgroups based on gender, age, education (Fine & Fields, 2008). Specific cultural knowledge about the norms and expectations of these subcultures is important for individuals operating in these domains to be effective. For example, managers in multicultural business contexts need to know how to motivate people from different cultures. They also need an understanding of effective negotiation strategies for different cultures. Other subcultures, for example, include diplomats in political contexts, missionaries in religious contexts, students in study abroad programs, peacekeeping forces assigned to zones with intercultural conflict, and humanitarian aid professionals working across borders after wars or natural disasters.

Context-specific knowledge of a particular domain is sometimes referred to as *emic* or *insider* understanding. This is in contrast to *culture-general* knowledge that emphasizes broader comparisons across cultures based on *etic* or *outsider* understanding and comparisons (Morris, Kwok, Ames, & Lickel, 1999).

Taken together, both sub-dimensions of cognitive CQ – culture-general knowledge and context-specific knowledge, are important and complementary. Having a broader understanding of the objective and subjective cultural elements (culture-general knowledge) facilitates a deeper understanding of how people in a particular cultural domain are shaped by the larger cultural environment to think and behave (context-specific knowledge). Hence, individuals high in cognitive CQ should have culture-general knowledge to understand the diverse range of cultures that might be encountered and context-specific knowledge to operate efficiently and effectively within a specific domain.

For example, an employee with task-oriented cultural values who has high cognitive CQ would know that there are differences in family systems across cultures (culture-general knowledge) and would expect local differences in human-resource policies in relationship-oriented cultures where employees may be expected to care for senior members

of the extended family (context-specific knowledge). Likewise, an employee with relationship-oriented cultural values who has high cognitive CQ would understand that regularly taking time off to care for family members would be unexpected and not covered by HR policies in a task-oriented cultural context.

The Expanded Cultural Intelligence Scale (E-CQS) assesses the two sub-dimensions of cognitive CQ – culture-general knowledge and context-specific knowledge. Given our interest in organizational contexts, we focused specifically on context-specific knowledge of effective management practices across cultural contexts (see Table 1 for sample items). Future research can focus on measures of context-specific knowledge for other subgroups.

Sub-dimensions of motivational CQ

Motivational CQ refers to an individual's capability to direct attention and energy toward learning about and functioning in situations characterized by cultural differences (Ang & Van Dyne, 2008). According to Kanfer and Heggestad (1997, p. 39) motivational capacities "provide agentic control of affect, cognition and behavior that facilitate goal achievement." Agentic control is important because intercultural interactions are fraught with obstacles that can generate uncertainty and anxiety (Gudykunst, 1993; Maertz, Hassan, & Magnusson, 2009; Molinsky, 2007). Those who feel agentic and see the potential value of cultural diversity are better able to sustain the energy necessary for effective interactions (Brooks & Schweitzer, 2011; Wood, Bandura, & Bailey, 1990).

Motivation theories differ in their focus on what drives work-related behavior. Some motivation theories focus on enduring individual differences, such as needs, values, and traits, as sources of internal tensions that drive work-related behavior. Other theories focus not on the individual, but on contextual variables, such as job design characteristics or national culture, which encourage or discourage work-related behavior (see Latham & Locke, 2007; Latham & Pinder, 2005). However, in line with our conceptualization of CQ as a malleable individual difference, we draw on motivation theories that focus on state-like individual difference constructs, rather than enduring individual differences or contextual variables that are not within the control of the individual.

Dominant contemporary motivation theories that focus on state-like individual difference constructs include expectancy-value models (Eccles & Wigfield, 2002), social cognitive theory (Bandura, 2002), and self-determination theory (Ryan & Deci, 2000). Self-determination theory (Ryan & Deci, 2000) differentiates intrinsic and extrinsic aspects of agency, and the expectancy-value theory of motivation (Eccles & Wigfield, 2002) emphasizes the importance of task-specific self-efficacy in directing attention and effort toward specific tasks. In particular, Bandura (2002) highlighted the functional value of self-efficacy in adapting and relating to others in culturally diverse contexts. Thus, motivational self-efficacy provides the confidence to adjust while intrinsic and extrinsic interests provide compelling reasons to get involved (Parker, Bindl, & Strauss, 2010). Drawing on self-determination theory (Ryan & Deci, 2000), expectancy-value theory (Eccles & Wigfield, 2002), and social cognitive theory (Bandura, 2002), we focus on three sub-dimensions of motivational CQ. These are intrinsic interest, extrinsic interest, and self-efficacy to adjust.

Intrinsic Interest is defined as valuing culturally diverse experience in and of itself because it is inherently satisfying (Deci, 1975; Kanfer, forthcoming). This includes the intrinsic satisfaction gained from novel intercultural interactions and basic enjoyment of working with people from different cultural backgrounds. It also includes a fundamental interest in

working in diverse groups where people come from different cultural backgrounds. Intrinsic benefits of intercultural experience are important because they are self-generated and not dependent on others or on the situation.

Extrinsic Interest is defined as valuing the tangible, personal benefits that can be derived from culturally diverse experiences (Ryan & Deci, 2000). This includes a sense of increased employability based on having intercultural experiences and an enhanced reputation based on international work experiences. It also includes other tangible benefits that can result from international work assignments such as promotions and access to higher levels of responsibility. Extrinsic benefits of intercultural experience are important because they provide organizations with mechanisms and rewards that incent employees to accept and persevere in challenging cross-cultural work engagements (Kanfer, forthcoming).

Self-Efficacy to Adjust is defined as having task-specific confidence (Bandura, 1997, 2002; Eccles & Wigfield, 2002) in culturally diverse situations. It focuses on feeling capable of dealing with the stresses of adjusting to new cultures. It also includes a sense of confidence to interact with locals who have different cultural backgrounds and confidence to work in culturally diverse groups and settings. Confidence and intrinsic motivation are intertwined because people choose to engage in activities when they feel efficacious (Latham & Locke, 2007; Stajkovic & Luthans, 1998; Vancouver, More, & Yoder, 2008).

When the motivational CQ sub-dimensions are activated, people with high motivational CQ are attracted to intercultural situations because they value the benefits of these interactions and are confident that they can cope with the inherent challenges of cultural differences. For example, an executive with high motivational CQ who has polychronic cultural values (e.g., who typically allows friends and family to interrupt business meetings) would be motivated to put a visitor from a monochronic culture at ease by putting cell phones on vibrate and focusing on one thing at a time during business meetings. Likewise, an executive with high motivational CQ who has monochronic cultural values would not be dismayed or demotivated when a colleague who has polychronic cultural values takes a personal phone call and chats with a family member during a business meeting.

Together, the three sub-dimensions of motivational CQ illustrate the importance of valuing the tangible (extrinsic) and intangible (intrinsic and intercultural self-efficacy) benefits of motivational CQ. Extrinsic interest is motivating because it provides tangible benefits. Intrinsic interest is a source of motivation because it provides personal satisfaction and enjoyment. Self-efficacy to adjust is motivating because people prefer to exhibit their strengths and capabilities. Combined these three types of motivation trigger and sustain energy directed toward effective functioning in intercultural settings even when things are difficult or unexpected. The Expanded Cultural Intelligence Scale (E-CQS) includes the three sub-dimensions of motivational CQ (see Table 1 for sample items).

Sub-dimensions of behavioral CQ

Lastly, behavioral CQ refers to an individual's capability to enact a wide repertoire of verbal and nonverbal actions when interacting with people from different cultures (Ang & Van Dyne, 2008). Behavioral CQ allows people to manage and regulate social behaviors in intercultural encounters so there is minimal misperception and misattribution (Ghahremani, Monterosso, Jentsch, Bilder, & Poldrack, 2010; Gudykunst, 1993).

Hall emphasized the importance of communication when training technicians and administrators to work abroad because his research identified misinterpretation of

communications as a frequent source of cross-cultural misunderstandings (Hall, 1959). More recent research by Sue and colleagues (Sue, Bucceri, Lin, Nadal, & Torino, 2007) reveals that differences in communication norms can be interpreted as a form of micro-aggression. For example, Asians feel forced to conform to Western communication norms (talking more) in academic settings, or risk being perceived as disengaged or inattentive by teachers.

Intercultural communication research (e.g., Gudykunst, Ting-Toomey, & Chua, 1988; Spencer-Oatey, 2008) documents large variations in “appropriate” ways to communicate across cultures. These scholars have classified communication behaviors into three broad categories: (i) types and range of verbal behaviors, (ii) types and range of nonverbal expressions, and (iii) specific speech acts – the words and phrases used to convey specific messages (Lustig & Koester, 2009). As a result, behavior that is appropriate when communicating in one cultural setting may be inappropriate in another (Earley & Ang, 2003; Trompenaars & Hampden-Turner, 1998). Accordingly, people must be flexible and adapt their behavior to fit the cultural context (Gudykunst & Kim, 1984; Ylänné, 2008). This behavioral flexibility is critically important in intercultural contexts because people do not have direct access to thoughts, feelings, and motivations of others. Instead, they must rely on what they see, hear, and infer from verbal, vocal, facial, and bodily expressions (Hall, 1959).

Based on intercultural communication research (Gudykunst et al., 1988; Hall, 1976), we focus on three sub-dimensions of behavioral CQ. These are verbal behavior, non-verbal behavior, and speech acts.

Verbal Behavior is defined as flexibility in vocalization (e.g., accent, tone). The capability to flex verbal behavior includes speaking faster or slower, louder or softer, and varying the amount of inflection (Victor, 1992). It includes changing the amount of warmth, enthusiasm, and formality conveyed by style of expression. Verbal behavior also includes flexibility in using pause and silence because cultures differ in the extent to which they take turns and use/avoid silence (Beamer & Varner, 2001).

Non-Verbal Behavior is defined as flexibility in communication that is conveyed via gestures, facial expressions, and body language, rather than through words (Knapp & Hall, 2010). The capability to flex non-verbal behavior includes modifying facial expressions and gestures (Westphal, Seivert, & Bonanno, 2010) because some cultures are neutral and others are expressive and thus differ in their physical gestures (Hall, 1959, 1976). Non-verbal behavioral flexibility includes standing and sitting closer together/farther apart and changing the amount and nature of physical contact and eye contact with others. For example, cultures differ in their greeting norms – some shake hands, while others bow, nod, or kiss. Non-verbal flexibility also applies to appearance such as formal versus informal clothing and body language (Knapp & Hall, 2010).

Speech Acts is defined as flexibility in manner of communicating specific types of messages such that requests, invitations, apologies, gratitude, disagreement, and saying “no” are expressed appropriately based on local standards (Bowe & Martin, 2007). This is important because cultures have different conceptualizations of the appropriate behavioral style of conveying some sorts of messages. This includes the words used, the degree of directness, and the force of speech acts (Spencer-Oatey, 2008). For example, when turning down a request in Germany, it can be appropriate just to say “no”. In Indonesia, however, it would be more appropriate to say no with the phrase “I will try” because of the emphasis on saving face. Cultures also differ in when apologies are expected. In many Anglo countries, apologies are expected only when you are at fault. In contrast, apologies can be expected in Japan to maintain harmony, even though you are not at fault – such as apologizing for an offence caused by a family member (Tanaka, 1991).

When the behavioral CQ sub-dimensions are activated, those with high behavioral CQ overcome the natural human tendency to rely on habits. Instead they show their behavioral flexibility in intercultural settings. This includes code-switching (Molinsky, 2007) and adjusting to the cultural context. For example, a traveler with high behavioral CQ who has low context cultural values (e.g., who tends to communicate explicitly) would show behavioral flexibility and say “no” indirectly when interacting with a new friend who has high context cultural values. Likewise, a traveler with high behavioral CQ who has high context cultural values (e.g., who tends to communicate indirectly) would demonstrate flexibility by being more explicit and direct when communicating with a new friend from a low context culture so that the communication would be more effective. Similarly, those from expressive cultures show their behavioral CQ by being less animated and loud when interacting with people from neutral cultures who regard affective expressions as a breach of good manners.

Together, the three sub-dimensions of behavioral CQ emphasize the complex flexibility required for effective intercultural interactions. Verbal flexibility enhances effectiveness of communication. Non-verbal flexibility demonstrates respect for different cultural norms. Flexibility in speech-acts demonstrates nuanced understanding of communication conventions and puts others at ease. Nonverbal behaviors are especially critical because they function as a “silent language” and are interpreted as subtle indicators of sincerity, honesty, competence, etc. (Hall, 1959). Behavioral flexibility towards culturally diverse others shows respect (Spencer-Oatey, 2008). Given that behavioral actions are most visible and accessible to others, the three behavioral CQ sub-dimensions may be the most critical aspects of CQ to observers. The Expanded Cultural Intelligence Scale (E-CQS) includes the three sub-dimensions of behavioral CQ (see Table 1 for sample items).

Brief Review of Empirical Findings

In this section, we summarize recent empirical evidence supporting the proposed sub-dimensions of CQ and the psychometric properties of the Expanded Cultural Intelligence Scale (E-CQS). The E-CQS assesses eleven sub-dimensions of CQ with 37 items (three for each sub-dimension of metacognitive CQ, motivational CQ, and behavioral CQ and five for each sub-dimension of cognitive CQ). Table 1 lists example items.

We collected data from 286 individuals (63% undergraduates; 37% working MBAs) from more than 30 countries (Australia, Austria, Belgium, Canada, China, Czech Republic, France, Germany, Hong Kong, India, Indonesia, Kazakhstan, Malaysia, Mexico, Nepal, Netherlands, Norway, Pakistan, Republic of Korea, Russian Federation, Singapore, Spain, Sweden, Switzerland, Turkey, Ukraine, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, United States of America, and Vietnam) enrolled in an international management course in Singapore. On average, respondents were 26 years and 60% were female.

Confirmatory factor analysis (CFA) demonstrated discriminant validity of the sub-dimensions within each of the four CQ factors. Each of the four models showed good fit to the data, and each hypothesized model had better fit than plausible alternative models. For metacognitive CQ, the hypothesized three factor model was a better fit than any of the three possible two factor models that combined two of the factors or a one factor model. For cognitive CQ, the hypothesized two factor model was a better fit than a one factor model that combined the two factors. For motivational CQ, the hypothesized three factor model was a better fit than any of the three possible two factor models that combined two of the factors or a one factor model. Finally, for behavioral CQ, the

hypothesized three factor model was a better fit than any of the three possible two factor models that combined two of the factors or a one factor model.

CFA of the 11-factor model demonstrated excellent fit to the covariance matrix, with significant factor loadings, and this model had significantly better fit than a 4-factor model of the four primary CQ factors. More important, the fit of an 11-factor model with four correlated second-order factors was a significantly better fit than a four correlated first-order factor model.

Composite reliabilities for all sub-dimensions were acceptable. Correlations between sub-dimensions and the respective higher order factors as well as correlations among respective sub-dimensions for each factor compared to correlations among sub-dimensions across factors support convergent and discriminant validity. Analysis of AVE statistics (Fornell & Larcker, 1981) provides additional evidence in support of discriminant validity, and the square root of each AVE statistic was greater than the squared correlations among the sub-dimensions. Finally, all factor loadings were significantly different from zero.

Future Research Directions

Ang and Van Dyne (2008) theorized that the four factors of CQ are qualitatively different factors of the overall capability to function and manage effectively in culturally diverse settings. The sub-dimensions of each factor represent different capabilities that form the higher level factor. Two individuals with the same level of motivational CQ might have different CQ profiles across sub-dimensions. For example, some people are primarily motivated by intrinsic interest in other cultures whereas others are driven by the tangible benefits they anticipate from intercultural experiences. Some people may know a lot about different economic systems whereas others know a lot about interpersonal norms across cultures. Some people spend a lot of time planning for intercultural interactions whereas others focus more on checking and adjusting in real time. Finally, some people may be comfortable changing their verbal communication style while others tend to adapt their physical contact when interacting with culturally diverse others.

This highlights a new area for future CQ research. To date, the typical approach to examining relationships within the nomological network of CQ has been dimensional. Researchers have theorized that the four factors of CQ affect outcomes independently. For example, Chen et al. (2010) focused on motivational CQ in predicting expatriate performance; while Imai and Gelfand (2010) highlighted the distinctiveness of motivational and behavioral CQ in predicting negotiation behaviors in intercultural dyads. Greater refinement in the conceptualization of the four factors of CQ and their sub-dimensions should facilitate research on interrelationships among the sub-dimensions for each factor as well as across the eleven sub-dimensions. For example, we have delineated planning and awareness as two of the three metacognitive CQ sub-dimensions. Planning is a cognitive activity that is activated before intercultural interactions. In contrast, awareness is conscious mental functioning that occurs in real time during interactions. Accordingly, the nomological networks of planning and awareness are most likely both similar and different. To illustrate, we could predict a positive relationship between planning and awareness because those who take the time and make the effort to prepare in advance for an intercultural encounter are also more likely to be cognizant of the role of culture on self, on others, and of the situation in real time. In contrast, we could also hypothesize a negative relationship between these two sub-dimensions of metacognitive CQ. This is because some people take the time and make the effort to anticipate and plan for an intercultural engagement and then stick with their plan and apply their mental script

during the interaction. As a result, they may be less conscious of cultural cues emanating from others and the intercultural situation during the actual interaction. Testing these alternative hypotheses is an interesting topic for future research.

Going beyond this, we recommend the potential value of supplementing the dimensional approach to CQ with a more holistic configurational approach (Meyer, Tsui, & Hinnings, 1993). A configurational approach could emphasize a person's CQ profile across the eleven sub-dimensions and how capabilities form clusters across different sub-dimensions. Preliminary analyses suggest that some profiles are more prevalent than others (e.g., some are high on all factors; some are high only on cognitive factors; some are high on motivational factors; and other combinations). Understanding whether different CQ profiles predict a different array of CQ outcomes presents an exciting avenue for future research.

In sum, we suggest two primary directions for future CQ research that build on the sub-dimensions identified in this paper. First, it will be important to examine the nomological network of the sub-dimensions. This includes antecedents and consequences of specific sub-dimensions as well as determining when focusing on the four factors versus the sub-dimensions is more relevant to a particular research question. Second, it will be important to examine profile or configurational approaches to CQ, ascertain what CQ profiles predict and do not predict, and when dimensions versus configurational approaches are more suitable for addressing specific research questions.

Conclusion

Responding to calls for a better understanding of the factors of CQ (Ang et al., 2011; Gelfand et al., 2008), this paper has presented a refined theoretical conceptualization of CQ that delineates sub-dimensions for each of the four primary factors of CQ. We have also summarized initial psychometric information on an Expanded Cultural Intelligence Scale (the E-CQS) that assesses the eleven sub-dimensions. We hope this paper facilitates future research on this expanded conceptualization of CQ, and we hope the sub-dimensions are practically useful because they identify specific capabilities for each CQ factor and accordingly should facilitate more focused and fine-tuned action steps for personal development plans aimed at enhancing CQ.

Short Biographies

Linn Van Dyne received her PhD from the University of Minnesota with a concentration in Strategic Management and Organization. Her research interests are proactive employee behaviors (including helping, voice, and silence), roles, cultural intelligence, and international organizational behavior. Van Dyne is Associate Editor for Organizational Behavior and Human Decision Processes and is on the editorial boards of *Academy of Management Journal*, *Journal of Applied Psychology*, *Journal of Organizational Behavior*, *Human Relations*, *Management and Organizational Review*, and *Organizational Psychology Review*. Her publications include *Academy of Management Journal*, *Academy of Management Review*, *Journal of Applied Psychology*, *Organizational Behavior and Human Decision Processes*, *Research in Organizational Behavior*, and other outlets. She is a member of the Academy of Management, the Society for Industrial and Organizational Psychology, the American Psychological Association, the Association for Psychological Science, and she is a Fellow in the Society of Organizational Behavior.

Soon Ang received her PhD from the University of Minnesota. She is the Goh Tjoei Kok Chair and Professor of Management and Head of the Division of Strategy, Management and Organization at the Nanyang Business School, Nanyang Technological University, Singapore. She is also the Executive Director of the Center for Innovation Research in Cultural Intelligence + Leadership (CIRCQL). Her research interests are in cultural intelligence, global leadership, and outsourcing. She has published extensively in *Academy of Management Journal*, *Journal of Applied Psychology*, *Organization Science*, *Management Science*, *Information Systems Research*, *MIS Quarterly*, and *Social Forces*, and serves on editorial boards including *Organization Science*, *Applied Psychology*, *Decision Science*, *MIS Quarterly*, and others. She pioneered and co-authored two foundation books on cultural intelligence (Stanford University Press) and co-edited the *Handbook of Cultural Intelligence* (ME Sharpe). She received the prestigious Distinguished International Alumni Award by the University of Minnesota for her academic leadership and scholarship record.

Kok Yee Ng received her PhD from Michigan State University. She is an associate professor in management at the Nanyang Business School, Nanyang Technological University and the Director of Research at the Center for Innovation Research in Cultural Intelligence + Leadership (CIRCQL). Her primary research interests are in international organizational behavior, focusing on cultural intelligence, global leadership, and teams. To date, she has published in top management journals including the *Academy of Management Journal*, *Journal of Applied Psychology*, *Management Science*, *Organizational Behavior & Human Decision Processes*, and the *Management & Information Systems Quarterly*. She is the Associate Editor of the *Group and Organization Management* and the *Journal of Trust Research*.

Thomas Rockstuhl received a double-Masters in Clinical and I/O Psychology from a prestigious German University (Technical University of Dresden). He is currently a PhD candidate with the Center for Innovation Research in Cultural Intelligence + Leadership (CIRCQL) at Nanyang Technological University. His primary research interests are in international organizational behavior, focusing on cultural intelligence, leadership, and teams. He has published in the *Journal of Social Issues*, the *NeuroLeadership Journal*, the *International Journal of Intercultural Relations*, the *Human Resource Development Review*, the *Handbook of Cultural Intelligence*, and the *Best Paper Proceedings of the Academy of Management* (2008). He previously worked as a Human Resource professional and consultant to major international companies such as Siemens, ThyssenKrupp, Bayer, BASF, or SAP; as well as for governmental agencies in Germany, Poland, and the Czech Republic.

Mei Ling Tan received her Master of Business degree from Nanyang Business School, Nanyang Technological University, Singapore. She is currently a PhD candidate with the Center for Innovation Research in Cultural Intelligence + Leadership (CIRCQL) at Nanyang Technological University. Her current research interests include cultural intelligence, cultural perspective-taking, and the integration of diverse workforces. She has published on the topics of psychological contracts, cultural intelligence, and global culture capital. She has presented her work at international conferences including the *Academy of Management meetings*, the *American Psychological Association Convention*, and the *International Association of Chinese Management Research Conference*.

Christine Koh received her PhD from Nanyang Business School, Nanyang Technological University, Singapore and a Masters of Science from the Claremont Graduate School. She is an associate professor in information technology at the Nanyang Business School, Nanyang Technological University and the Director of Technology and Psychometrics at

the Center for Innovation Research in Cultural Intelligence + Leadership (CIRCQL). Her research interests include cultural intelligence, leadership, cross-cultural issues in foreign talent management, and IT outsourcing management. She has published in *Journal of Applied Psychology*, *Management and Organization Review*, *Group and Organization Management*, *Information Systems Research*, *MIS Quarterly*, *Decision Sciences Journal*, and others.

Endnote

* Correspondence address: Department of Management, Michigan State University, East Lansing, MI 48824. Email: vandyne@msu.edu

References

- Ackerman, P. L. (1996). A theory of adult intelligence development: Process, personality, interests, and knowledge. *Intelligence*, *22*, 229–259.
- 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). Armonk, NY: M. E. Sharpe.
- Ang, S., Van Dyne, L., Koh, C. K. S., Ng, K. Y., Templer, K. J., Tay, C. et al. (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.
- Ang, S., Van Dyne, L., & Tan, M. L. (2011). Cultural intelligence. In R. J. Sternberg & B. S. Kaufman (Eds.), *Cambridge Handbook of Intelligence* (pp. 582–602). Cambridge: Cambridge University Press.
- Ashton, M. C. (1998). Personality and job performance: The importance of narrow traits. *Journal of Organizational Behavior*, *19*, 289–304.
- Bandura, A. (1997). *Self-Efficacy: The Exercise of Control*. New York: Freeman.
- Bandura, A. (2002). Social cognitive theory in a cultural context. *Applied Psychology: An International Review*, *51*, 269–290.
- Beamer, L., & Varner, I. (2001). *Intercultural Communication in the Global Workplace*. Boston: McGraw-Hill.
- Bell, B. S., & Kozlowski, S. W. J. (2008). Active learning: Effects of core training design elements on self-regulatory processes, learning, and adaptability. *Journal of Applied Psychology*, *93*, 296–316.
- Bhawuk, D. P. M. (1998). The role of culture theory in cross-cultural training. A multimethod study of culture-specific, culture-general, and culture theory-based assimilators. *Journal of Cross-Cultural Psychology*, *29*, 630–655.
- Bhawuk, D. P. M., & Brislin, R. W. (2000). Cross-cultural training: A review. *Applied Psychology: An International Review*, *49*, 162–191.
- Bowe, H. J., & Martin, K. (2007). *Communication Across Cultures: Mutual Understanding in a Global World*. Cambridge: Cambridge University Press.
- Briñol, P., & DeMarree, K. G. (2011 Eds.), *Social Metacognition*. New York: Psychology Press.
- Brooks, A. W., & Schweitzer, M. E. (2011). Can Nervous Nelly negotiate? How anxiety causes negotiators to make low first offers, exit early, and earn less profit. *Organizational Behavior and Human Decision Processes*, *115*, 43–54.
- Brown, D. (1991). *Human Universals*. New York: McGraw-Hill.
- Bubic, A., von Cramon, D., & Schubotz, R. I. (2010). Prediction, cognition and the brain. *Frontiers in Human Neuroscience*, *4*, 1–15.
- 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.
- Chen, X.-P., Liu, D., & Portnoy, R. (2012). A multi-level investigation of motivational cultural intelligence, organizational diversity climate, and cultural sales: Evidence from U.S. real estate firms. *Journal of Applied Psychology*, *97*, 93–106.
- Cushner, K., & Brislin, R. W. (1996). *Intercultural Relations: A Practical Guide* (2nd edn). Thousand Oaks, CA: Sage.
- Deci, E. L. (1975). *Intrinsic Motivation*. New York: Plenum Press.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. New York: Plenum.
- Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. In M. R. Rosenzweig & L. W. Porter (Eds.), *Annual Review of Psychology*, Vol. 41. (pp. 417–440). Palo Alto, CA: Annual Reviews.

- Earley, P. C., & Ang, S. (2003). *Cultural Intelligence: Individual Interactions Across Cultures*. Palo Alto, CA: Stanford University Press.
- 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.
- Endsley, M. R. (1995). Toward a theory of situation awareness in dynamic systems. *Human Factors*, **37**, 32–64.
- Fine, G. A., & Fields, C. D. (2008). Culture and microsociology: The anthill and the veldt. *The Annals of the American Academy of Political and Social Science*, **619**, 130–148.
- Flavell, J. H. (1979). Meta-cognition and cognitive monitoring: A new area of cognitive inquiry. *American Psychologist*, **34**, 906–911.
- Fornell, C., & Larcker, D. F. (1981). *Evaluating structural equation models with unobservable variables and measurement error*. *Journal of Marketing Research*, **28**, 39–50.
- Gardner, H. (1993). *Multiple Intelligences: The Theory in Practice*. New York: Basic Books.
- Gelfand, M. J., Erez, M., & Aycan, Z. (2007). Cross-cultural organizational behavior. In S. T. Fiske, D. L. Schacter & C. Zahn-Waxler (Eds.), *Annual Review of Psychology* Vol. 58. (pp. 479–514). Palo Alto, CA: Annual Reviews.
- 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). Armonk, NY: ME Sharpe.
- Ghahremani, D. G., Monterosso, J., Jentsch, J. D., Bilder, R. M., & Poldrack, R. A. (2010). Neural components underlying behavioral flexibility in human reversal learning. *Cerebral Cortex*, **20**, 1843–1852.
- Goldman, A. (1993). The psychology of folk psychology. *Behavioral and Brain Sciences*, **16**, 15–28.
- Groves, K. S., & Feyerherm, A. (2011). Leader cultural intelligence in context: Testing the moderating effects of team cultural diversity on leader and team performance. *Group & Organization Management*, **36**, 535–566.
- Gudykunst, W. B. (1993). Toward a theory of interpersonal and intergroup communication: An anxiety/uncertainty management (AUM) perspective. In R. Wiseman & J. Koester (Eds.), *Intercultural Communication Competence* (pp. 33–71). Newbury Park, CA: Sage.
- Gudykunst, W. B., & Kim, Y. Y. (1984). *Communicating with Strangers*. Beverly Hills, CA: Sage.
- Gudykunst, W. B., Ting-Toomey, S., & Chua, E. (1988). *Culture and Interpersonal Communication*. Newbury Park, CA: Sage.
- Hall, E. T. (1959). *The Silent Language*. New York: Anchor Books.
- Hall, E. T. (1976). *Beyond Culture*. New York: Doubleday.
- Haller, E. P., Child, D. A., & Walberg, H. J. (1988). Can comprehension be taught? A quantitative synthesis of “metacognitive” studies. *Educational Researcher*, **17**, 5–8.
- Heydenberk, R. A., & Heydenberk, W. R. (2005). Increasing meta-cognitive competence through conflict resolution. *Education and Urban Society*, **37**, 431–452.
- Hofstede, G. (1980). *Culture's Consequences: International Differences in Work-Related Values*. Beverly Hills, CA: Sage.
- House, R. J., Hanges, P. J., Javidan, M., Dorfman, P., & Gupta, V. (2004). *Cultures, Leadership, and Organizations: GLOBE Study of 62 Societies*. Newbury Park, CA: Sage.
- 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.
- Jacobs, J. E., & Paris, S. G. (1987). Children's metacognition about reading: Issues in definition, measurement and instruction. *Educational Psychologist*, **22**, 143–158.
- Kanfer, R. (forthcoming). Work motivation: Theory, practice, and future directions. In S. W. J. Kozlowski (Ed.), *The Oxford Handbook of Industrial and Organizational Psychology*. New York: Oxford University Press.
- Kanfer, R., & Heggestad, E. D. (1997). Motivational traits and skills: A person-centered approach to work motivation. *Research in Organizational Behavior*, **19**, 1–56.
- Keith, N., & Frese, M. (2005). Self-regulation in error management training: Emotion control and metacognition as mediators of performance effects. *Journal of Applied Psychology*, **90**, 677–691.
- Kim, K., Kirkman, B. L., & Chen, G. (2008). Cultural intelligence and international assignment effectiveness: A conceptual model and preliminary findings. In S. Ang & L. Van Dyne (Eds.), *Handbook of Cultural Intelligence: Theory, Measurement, and Applications* (pp. 71–90). Armonk, NY: ME Sharpe.
- Kim, Y. J., & Van Dyne, L. (forthcoming). Cultural intelligence and international leadership potential: The importance of contact for members of the majority. *Applied Psychology: An International Review*.
- Knapp, M., & Hall, J. (2010). *Nonverbal Communication in Human Interaction* (7th edn). Boston, MA: Wadsworth.
- Latham, G. P., & Locke, E. A. (2007). Employee motivation. In J. Barling & C. L. Cooper (Eds.), *The Sage Handbook of Organizational Behavior: Vol. 1. Micro Approaches* (pp. 318–333). Thousand Oaks, CA: Sage.
- Latham, G. P., & Pinder, C. C. (2005). Work motivation theory and research at the dawn of the twenty-first century. *Annual Review of Psychology*, **56**, 485–516.
- Legg, A. M., & Locker, L. Jr. (2009). Math performance and its relationship to math anxiety and metacognition. *North American Journal of Psychology*, **11**, 471–486.
- Livermore, D. (2009). *Leading with Cultural Intelligence: The New Secret to Success*. New York: AMACOM.

- Lustig, M. W., & Koester, J. (2009). *Intercultural Competence: Interpersonal Communication Across Cultures* (6th edn). New York: Addison Wesley Longman.
- Maertz, C. P. Jr, Hassan, A., & Magnusson, P. (2009). When learning is not enough: A process model of expatriate adjustment as cultural cognitive dissonance reduction. *Organizational Behavior and Human Decision Processes*, **108**, 66–78.
- 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.
- Mok, Y. F., Fan, R. M.-T., & Pang, N. S.-K. (2007). Developmental patterns of school students' motivational- and cognitive-metacognitive competencies. *Educational Studies*, **33**, 81–98.
- Molinsky, A. (2007). Cross-cultural code-switching: The psychological challenges of adapting behavior in foreign cultural interactions. *Academy of Management Review*, **32**, 622–640.
- Moon, H. (2001). The two faces of conscientiousness: Duty and achievement striving in escalation of commitment dilemmas. *Journal of Applied Psychology*, **86**, 533–540.
- Morris, M., Kwok, L., Ames, D., & Lickel, B. (1999). Views from inside and outside: Integrating emic and etic insights about culture and justice judgment. *Academy of Management Review*, **24**, 781–796.
- Murdock, G. P. (1987). *Outline of Cultural Materials* (5th rev. edn). New Haven, CT: HRAF.
- Nelson, T. O. (1996). Conscientiousness and meta-cognition. *American Psychologist*, **51**, 102–116.
- Ng, K.-Y., & Earley, P. C. (2006). Culture and intelligence old constructs, new frontiers. *Group and Organization Management*, **31**, 4–19.
- 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.
- O'Neil, H. E., & Abedi, J. (1996). Reliability and validity of a state metacognitive inventory: Potential for alternative assessment. *The Journal of Educational Research*, **89**, 234–245.
- Parker, S. K., Bindl, U. K., & Strauss, K. (2010). Making things happen: A model of proactive motivation. *Journal of Management*, **36**, 827–856.
- Paunonen, S. V., & Jackson, D. N. (2000). What is beyond the Big Five? Plenty! *Journal of Personality*, **68**, 821–835.
- Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, **82**, 33–40.
- Ridley, D. S., Schutz, P. A., Glanz, R. S., & Weinstein, C. E. (1992). Self-regulated learning: The interactive influence of metacognitive awareness and goal-setting. *Journal of Experimental Education*, **60**, 293–306.
- Roberts, B. W., Chernyshenko, O. S., Stark, S., & Goldberg, L. R. (2005). The structure of conscientiousness: An empirical investigation based on seven major personality questionnaires. *Personnel Psychology*, **58**, 103–139.
- 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). Armonk, NY: ME Sharpe.
- Rockstuhl, T., Seiler, S., Ang, S., Van Dyne, L., & Annen, H. (2011). Beyond EQ and IQ: The role of cultural intelligence in cross-border leadership effectiveness in a globalized world. *Journal of Social Issues*, **67**, 825–840.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, **25**, 54–67.
- Savani, K., Morris, M. W., Naidu, N. V. R., Kumar, S., & Berlia, N. V. (2011). Cultural conditioning: Understanding interpersonal accommodation in India and the U.S. in terms of the modal characteristics of interpersonal influence situations. *Journal of Personality and Social Psychology*, **100**, 84–102.
- Schmidt, A. M., & Ford, J. K. (2003). Learning within a learner control training environment: The interactive effects of goal orientation and metacognitive instruction on learning outcomes. *Personnel Psychology*, **56**, 405–429.
- Schmidt, F. L., & Hunter, J. E. (2000). Select on intelligence. In E. A. Locke (Ed.), *Handbook of Principles of Organizational Behavior* (pp. 3–14). Oxford, UK: Blackwell.
- Schneider, R. J., Hough, L. M., & Dunnette, M. D. (1996). Broad-sided by broad traits: how to sink science in five dimensions or less. *Journal of Organizational Behavior*, **17**, 639–655.
- 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). Armonk, NY: ME Sharpe.
- Sheldon, K. M. (1996). The social awareness inventory: Development and applications. *Personality and Social Psychology Bulletin*, **22**, 620–634.
- 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). Armonk, NY: ME Sharpe.
- Sitzmann, T., Bell, B. S., Kraiger, K., & Kanar, A. M. (2009). A Multilevel analysis of the effects of prompting self-regulation in technology-delivered instruction. *Personnel Psychology*, **62**, 697–734.

- Sitzmann, T., & Ely, K. (2011). A meta-analysis of self-regulated learning in work-related training and educational attainment: What we know and where we need to go. *Psychological Bulletin*, **137**, 421–442.
- Spencer-Oatey, H. (2008). Face, (im)politeness, and rapport. In H. Spencer-Oatey (Ed.), *Culturally Speaking: Culture, Communication, and Politeness Theory* (2nd edn pp. 11–47). London: Continuum.
- Stajkovic, A. D., & Luthans, F. (1998). Self-efficacy and work-related performance: A meta-analysis. *Psychological Bulletin*, **124**, 240–261.
- Sternberg, R. J. (1986). A framework for understanding conceptions of intelligence. In R. J. Sternberg & D. K. Detterman (Eds.), *What is Intelligence? Contemporary Viewpoints on its Nature and Definition* (pp. 3–15). Norwood, NJ: Ablex.
- Sternberg, R. J., & Detterman, D. K. (1986). *What is Intelligence? Contemporary Viewpoints on its Nature and Definition*. Norwood, NJ: Ablex.
- Sternberg, R. J., Forsythe, G. B., Hedlund, J., Horvath, J., Snook, S., Williams, W. M. et al. (2000). *Practical Intelligence in Everyday Life*. New York: Cambridge University Press.
- Stewart, E. C., & Bennett, M. I. (1991). *American Cultural Patterns: A Cross-Cultural Perspective*. Yarmouth, ME: Intercultural Press.
- Sue, D. W., Bucceri, J., Lin, A. I., Nadal, K. L., & Torino, G. C. (2007). Racial microaggressions and the Asian American experience. *Cultural Diversity and Ethnic Minority Psychology*, **13**, 72–81.
- Tanaka, N. (1991). An investigation of apology: Japanese in comparison with Australian. *Meikai Journal*, **4**, 35–53.
- Templer, K., 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.
- Thorndike, R. L., & Stein, S. (1937). An evaluation of the attempts to measure social intelligence. *Psychological Bulletin*, **34**, 275–285.
- Triandis, H. C. (1972). *Analysis of Subjective Culture*. New York: Wiley.
- Triandis, H. C. (1977). Theoretical framework for evaluation of cross-cultural training effectiveness. *International Journal of Intercultural Relations*, **1**, 19–45.
- Triandis, H. C. (1994). *Culture and Social Behavior*. New York: McGraw-Hill.
- Triandis, H. C. (2006). Cultural intelligence in organizations. *Group and Organization Management*, **31**, 20–26.
- Trompenaars, F., & Hampden-Turner, C. (1998). *Riding the Waves of Culture: Understanding Diversity in Global Business*. New York: McGraw Hill.
- 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). Armonk, NY: ME Sharpe.
- Vancouver, J. B., More, K. M., & Yoder, R. J. (2008). Self-efficacy and resource allocation: Support for a nonmonotonic, discontinuous model. *Journal of Applied Psychology*, **93**, 35–47.
- Victor, D. (1992). *International Business Communication*. New York: HarperCollins.
- Westphal, M., Seivert, N. H., & Bonanno, G. A. (2010). Expressive flexibility. *Emotion*, **10**, 92–100.
- Wood, R. E., Bandura, A., & Bailey, T. (1990). Mechanisms governing organizational performance in complex decision making environments. *Organizational Behavior and Human Decision Processes*, **46**, 181–201.
- Ylänné, V. (2008). Communication accommodation theory. In H. Spencer-Oatey (Ed.), *Culturally Speaking: Culture, Communication, and Politeness Theory* (2nd edn pp. 164–186). London: Continuum.