

**Cultural Metacognitive Processes:  
Psychological Mechanisms Promoting Intercultural Effectiveness**

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## ABSTRACT

### **Cultural Metacognitive Processes: Psychological Mechanisms Promoting Intercultural Effectiveness**

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In Chapter 1, I provide a general theoretical framework for the dissertation. In Chapter 2, I examine the association between cultural metacognition and intercultural effectiveness. In Chapter 3, I examine the conditions and cognitive mechanisms that facilitate application and updating of cultural knowledge among individuals high on cultural metacognition. I further test whether related individual difference factors can explain the hypotheses I proposed in Chapter 3. Multiple methods were employed to test my hypotheses using quasi-field surveys with executives, 360 degree multi-rater surveys with MBA students as well as experimental designs with lab and crowdsourcing participants.

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## CHAPTER 1

### General Introduction

The globalization of business presses managers to communicate, negotiate and collaborate across cultures (Adler & Gundersen, 2008; Brett, 2007). Firms depend on informal coordination between managers located in different parts of the organization (Barnard, 1968), and this presents a challenge to global firms. While expatriate assignments can facilitate the transfer of knowledge across borders, expatriates often face difficulties in adjusting to the foreign culture (Caruso, Epley, & Bazerman, 2006) which can result in early termination of assignments (Graham, 1985). Other mechanisms for coordination and learning in global organizations are multinational teams and international alliances (Adler & Gundersen, 2008; Byrne, 1993). Yet such structures often run aground on the failure of managers from different cultures and countries to work effectively with one another (Earley & Gibson, 2002; Hagel & Brown, 2005).

Firms have long sought employees with cross cultural capabilities but have not known how best to select for them or develop them. Management researchers have integrated disparate insights about relevant characteristics and capabilities under the rubric of cultural intelligence (Earley & Ang, 2003; Earley & Peterson, 2004; Ng, Van Dyne, & Ang, 2009), drawing on Sternberg and Detterman's (2002) theory of multiple intelligences. Cultural intelligence or "CQ" is defined as "an individual's capability to function and manage effectively in culturally diverse settings" (Ang et al., 2007, p. 337). Ang et al (2012) have studied cultural intelligence as four individual-difference dimensions, including metacognitive, cognitive, motivational and behavioral components. Initial studies with this instrument have found that some dimensions predict some criterion measures of intercultural performance, ranging from international student adaptation to teamwork effectiveness (Ang, Van Dyne, & Tan, 2011). Thomas and colleagues

(2008) have introduced a rival framework that holds cultural metacognition to be the central component of managerial intercultural capability.

Importantly, CQ has been distinguished from the role of general intelligence in promoting intercultural effectiveness (Rockstuhl, Seiler, Ang, Van Dyne, & Annen, 2011). Although emotional intelligence (Mayer & Salovey, 1995) also fosters interpersonal interactions, research comparing the two found that only cultural intelligence was associated with cross-border effectiveness, while emotional intelligence was uniquely associated with domestic leadership effectiveness (Rockstuhl et al., 2011). Along the same vein, a study examining leader effectiveness working in diverse versus homogenous teams found that while a leader's CQ was uniquely associated with performance in diverse teams, a leader's EQ revealed no such association (Groves & Feyerherm, 2011). In summary, it appears that cultural intelligence picks up where emotional intelligence leaves off; while individuals high on emotional intelligence can understand universal human emotions, they lack the ability of individuals high on cultural intelligence to discern between universal features, features peculiar to this person or this group, and those that are neither universal nor idiosyncratic (Earley & Mosakowski, 2004). As an illustration, the former US President George Bush exemplifies a person high in emotional intelligence; he won debates against more informed counterparts by establishing more rapport with national audiences (Zurbruggen, 2005). Yet Bush also exhibited low cultural intelligence in management of foreign policy; his diplomatic blunders include announcing Operation Infinite Justice in Afghanistan as a "crusade" (Kellner, 2003).

Two important questions in the CQ literature have remained unresolved. First, which cultural intelligence dimensions matter most for working relationships with different-culture counterparts? Second, what are the intervening cognitive mechanisms or processes that

distinguish individuals who are higher on these dimensions? The aim of the present dissertation is to provide theoretical and empirical evidence to answer these two questions.

Drawing on past research in management and social psychology, I argue that cultural metacognition (e.g. metacognitive CQ) is a crucial capability for intercultural interactions and relationships. Van Dyne and colleagues (2012) have conceptualized metacognitive CQ as facility in thinking about cultural knowledge and cultural assumptions, including self-awareness, monitoring, and updating of one's cultural assumptions about other groups. To establish my reasoning for the role of cultural metacognition, I will first provide a brief overview of metacognition research in psychology and its more recent role in management research on intercultural effectiveness.

### **Metacognition**

Metacognition means thinking about thinking. According to Flavell (1976), metacognitive knowledge is “knowledge concerning one's own cognitive processes and products or anything related to them” (p. 232). Metacognitive inference encompasses everything that pertains to the monitoring, assessment, or planning of one's learning (Brown, 1980; Tobias & Everson, 2002). Metacognitive processing is essential to human development because they result in adding, deleting, or revising one's assumptions about the world (McCormick, 2003). Moreover, social psychology research reveals that metacognitive habits can also be associated with deliberate strategies for controlling biases or stereotypes (Jost, Kruglanski, & Nelson, 1998). For example, reduction in bias occurs when individuals are made aware of factors that bias their social judgments.



## **Cultural Metacognition**

Cultural Metacognition refers to an individual's level of awareness of and active management of cultural assumptions and knowledge before, during and after cross-cultural interactions (Earley & Ang, 2003). Ang and Van Dyne (2008) proposed that cultural metacognition is one of the four dimensions of cultural intelligence. Thomas (2008) theorized that this dimension is at the core of intercultural capability or cultural intelligence. The studies in this dissertation will examine the consequences of cultural metacognition. My point of departure is the individual difference instrument developed by Ang and Van Dyne (2012). This measure was validated across different contexts and participant populations (Ang et al., 2011). As reported earlier, cultural metacognition has been found to predict a number of relevant outcomes for intercultural performance such as cultural judgment and decision making and creative collaboration.

### **Cultural Metacognition Processes**

What do individuals higher on the cultural metacognition dimension do differently that contributes to better intercultural interactions? One way metacognition may help is increasing self-awareness. Early studies found that intercultural success is correlated with cultural mindfulness or self-awareness about one's cultural assumptions (Johnson, Cullen, Sakano, & Takenouchi, 1996; LaBahn & Harich, 1997). Individuals higher on cultural metacognition may also be more inclined to adjust their assumptions based on the information in an interaction. They question cultural assumptions and adjust their mental models during and after interactions (Van Dyne et al., 2012) suggesting that cultural metacognition develops through reflection during inter-cultural experiences (Ng et al., 2009), consistent with evidence that reflection helps people fine-tune their assumptions after experiences. More recent research by Li and colleagues

(2012) has similarly revealed that a divergent learning style, associated with reflective observation during international experiences, is positively associated with cultural metacognition.

Although the construct of cultural metacognition is new in management research, it follows a tradition emphasizing the importance of self-awareness and adjustment when interacting with foreigners in new cultural environments. Cognitive psychologists characterize metacognition as monitoring and adjusting one's thoughts and strategies as one learns new skills (Gelfand & Christakopoulou, 1999; Triandis, 1995). Expanding this line of theorizing, Ang et al. (2007) defined cultural metacognition as mental processes directed at acquiring, comprehending, and calibrating cultural knowledge. In accordance with these claims highlighting the importance of metacognitive habits, researchers examining international collaborative alliances (Johnson et al., 1996) have emphasized the importance of self-awareness and awareness of others' responses when managing these intercultural relations. In the following two chapters I will expand on the theory and claims highlighting the role of cultural metacognition in fostering intercultural professional alliances.

### **Overview of Dissertation Chapters**

The dissertation contains two main chapters which include four studies which were carried out to explore the role of cultural metacognition in intercultural performance and its associated cognitive mechanisms. In Chapter 2, I examine the relationship between cultural metacognition and intercultural effectiveness and propose it is can be explained by heightened social sensitivity leading to greater intercultural effectiveness. In Chapter 3, I examined two inferential processes or strategies associated with higher cultural metacognition that involve

adjustments based on the information in an interaction: contingent application of outgroup generalizations to a target and updating of generalizations after the interaction.

## **CHAPTER 2**

### **Cultural Metacognition and Intercultural Effectiveness**

#### **Traditional Research on Expatriate Effectiveness**

Traditional expatriate work effectiveness studies identify two key drivers: relational abilities and communication skills (Holopainen & Björkman, 2005). The former refers to the capacity of the expatriate to interact effectively with people from different cultures and to establish close relationships with them (Tung, 1981). Establishing relationships with people from foreign cultures should facilitate individuals' ability to understand foreign co-workers' behavior (Mendenhall & Oddou, 1985). Communication skills allow expatriates to enter into a meaningful dialogue with foreign counterparts and resolve misunderstandings (Holopainen & Björkman, 2005). These two capabilities facilitate coordination and execution of professional tasks. Thus, it is expected that individuals who are highly effective at forging relationships and successful at bridging communication gaps in intercultural exchanges would be more effective.

A more multifaceted analysis of intercultural effectiveness has come in recent research on cultural intelligence (Earley & Ang, 2003). As mentioned previously, this framework proposes that metacognitive, cognitive, motivational and behavioral factors should all contribute to individuals' ability to function and manage effectively in culturally diverse settings (Ang et al., 2007).

#### **Cultural Intelligence in Intercultural Performance**

According to cultural intelligence theory and research, all four cultural intelligence dimensions (cognitive, motivational, behavioral and metacognitive) are expected to contribute to intercultural effectiveness (2011). Importantly, researchers have found that cultural intelligence uniquely predicts intercultural performance, above and beyond emotional intelligence or general

intelligence (Rockstuhl et al., 2011). Some studies averaged across the four dimensions for an overall score. Leaders' overall CQ positively predicted perceptions of leader performance and team performance on diverse work teams (Groves & Feyerherm, 2011). Swiss military officers with higher overall cultural intelligence are rated by peers as higher in cross-cultural leadership effectiveness (Rockstuhl et al., 2011).

More incisive studies have examined the four dimensions independently. Motivational cultural intelligence is found to predict cultural adaptation in foreign assignments (Templer, Tay, & Chandrasekar, 2006), and expatriate job performance (Chen, Kirkman, Kim, Farh, & Tangirala, 2010). In intercultural negotiations, motivational and behavioral CQ predict integrative and cooperative behaviors. Integrative behaviors are behaviors such as communicating personal preferences over two issues and asking counterparts questions about their priorities between two issues, whereas cooperative sequences are expressions of enthusiasm for working together (Imai & Gelfand, 2010). Among MBA students working in culturally diverse teams, cognitive, metacognitive and behavioral CQ (but not motivational CQ) were associated with higher levels of trust towards and from peers (Rockstuhl & Ng, 2008). Although this research has linked cultural intelligence factors to intercultural performance measures, it remains unclear which dimensions are most important in fostering intercultural relationships and why.

At the same time, cross-cultural management scholars (Thomas et al., 2008) and social psychology scholars (Hong, 2010; Klafehn, Banerjee, & Chiu, 2008) have proposed that cultural metacognition is an important component of cultural intelligence. Scholars (Klafehn et al., 2008) suggest that metacognition in cultural domains increases intercultural effectiveness by promoting (a) contextualized thinking (i.e., heightened sensitivity to the fact that individuals' motivations

and behaviors are invariably shaped by the cultural contexts in which they are embedded) and (b) cognitive flexibility (i.e., discriminative use of mental schemas and behavioral scripts when interacting across cultures). These claims are consistent with recent research finding that cultural metacognition is associated with greater success collaborating in inter-cultural (but not intra-cultural) relationships (Chua, Morris, & Mor, 2012). The reasoning behind these claims is supported by theory about the underlying cognitive processes associated specifically with cultural metacognition.

### **Metacognitive Processes Facilitating Social Sensitivity**

One way in which cultural metacognition develops is through reflective observation during international assignments; thinking about one's international experiences and reflecting critically on one's cultural assumptions and beliefs (Ng et al., 2009). Reflection helps people to describe the situation objectively and develop an understanding of why things happen and enables individuals to look at things from different perspectives and appreciate different points of view (Kolb, 1984). Similarly, Klafhen, Banerjee and Chiu (2008) have proposed that individuals higher on cultural metacognition exhibit more flexibility in applying cultural assumptions or frames which facilitates a more accurate understanding of different culture counterparts. A finding consistent with this is that biculturals, who switch between two sets of cultural frames, score higher on cultural metacognition inventories (Thomas, Brannen, & Garcia, 2010).

The propensity of high cultural metacognition individuals to switch between different cultural frames suggests that they would be more able to take the perspectives of counterparts from other cultures and thus possess heightened social sensitivity. Social sensitivity reflects an ability allowing the accurate judgment of others' abilities, traits, and states (Bernieri, 2001). In

the context of cross-cultural interactions, researchers have found that understanding counterparts' cultural norms and values facilitates intercultural accuracy (Gelfand & Christakopoulou, 1999; Q. Li & Hong, 2001). Thus, I will explore one unanswered question stemming from prior theory: is cultural metacognition associated with greater social sensitivity in intercultural interactions?

To examine this question, it is worth reviewing past research examining the role of metacognitive habits, such as reflection and perspective taking, in enhancing interpersonal sensitivity and coordination. Early work on perspective taking revealed that perspective taking facilitates interpersonal accuracy; participants high on perspective-taking (Davis, 1983) were more accurate about their counterparts than low perspective-takers (Bernstein & Davis, 1982). Perspective-taking assesses the respondent's tendency to try to understand people by imagining their perspectives. Individuals scoring high on perspective taking tend to offer causal attributions for another's behavior that are less like those of a typical observer and more like those offered by actors themselves (Davis, 1983). Perspective-takers, then, adopt an "attributional perspective" different from the typical observer's perspective—one that is more characteristic of the actor's point of view.

Perspective taking is a conscious cognitive process (Hatfield, Cacioppo, & Rapson, 1994) that allows an observer to infer what a target is feeling and thus understand his or her preferences. Importantly, observers do not have to become emotionally aroused for cognitive empathy to occur; they can simply process available cues and information and come to a conclusion as to what the other person is feeling. In some contexts, cognitive perspective taking fosters interpersonal coordination more than does affective mechanisms such as empathy (Galinsky, Maddux, Gilin, & White, 2008), although some conditions such as visual contact help

interpersonal coordination through affective but not cognitive perspective taking (Drolet & Morris, 2000).

Given that higher cultural metacognition should be associated with greater perspective taking, it should result in more accurate judgments of different-culture counterparts' intentions and behaviors—heightened social sensitivity. Cultural metacognition has been found to be positively associated with more accurate judgment and decisions about situations in foreign cultures (Ang et al., 2007). Moreover, heightened perceptual accuracy about outgroup norms facilitates interpersonal relations with outgroup members (Q. Li & Hong, 2001). Thus, I further propose that heightened social sensitivity of different culture peers would explain the relationship between cultural metacognition and intercultural effectiveness.

Whereas an alternative account may suggest that knowledge about different cultures should facilitate taking the perspective of different culture counterparts values and norms, this view fails to take into account situations in which different culture counterparts' behavior *deviates* from cultural norms (Fischer, 2006; Fu et al., 2007). In these situations, individuals who report possessing greater cultural knowledge (assessed by the cognitive dimension of cultural intelligence) may not necessarily be more capable coordinating or accomplishing tasks with different culture peers, as they do not possess the cognitive flexibility or motivation to hold off application of cultural schemas (Kunda & Spencer, 2003) to interpret the behaviors of different culture counterparts. Consistent with these claims, recent research finds high levels of cultural knowledge do not provide additional value in terms of creative performance in multicultural contexts for individuals high on cultural metacognition, suggesting that metacognitive abilities could be sufficient for intercultural problem solving (Chua & Neg, 2013) and coordination. This evidence is inconsistent with past research on metacognition revealing that metacognitive skill is



interchangeable with aptitude in predicting performance (Swanson, 1990). Hence, my first formal hypothesis contends that cultural metacognition (metacognitive CQ) would be positively associated with intercultural effectiveness, operationalized as one's ability to forge effective working relations with different culture counterparts.

***Hypothesis 1a:*** Cultural metacognition will be positively associated with intercultural effectiveness, above and beyond the three other CQ factors (motivational, behavioral and cognitive CQ).

***Hypothesis 1b:*** The effect of cultural metacognition on intercultural effectiveness will be mediated by social sensitivity.

To test the above hypotheses, I examined cultural metacognition among executives and MBAs' working with different culture peers as part of their everyday work assignments or part of international work teams. I used this method to assess intercultural performance as past research has evaluated cross-cultural effectiveness by having different culture bosses or peers assess target individuals on their cross-cultural leadership or performance effectiveness (Black & Porter, 1991; Holopainen & Björkman, 2005; Rockstuhl et al., 2011) .

## Study 1

### Cultural Metacognition and Intercultural Effectiveness among Executives

The first study in this chapter is based on data that has been previously collected and re-analyzed using previously unexplored variables (Chua et al., 2012). My main variables of interest were cultural metacognition scores of senior executives and their intercultural effectiveness.

#### Method

##### Participants and Design

Forty three middle-level managers (81% male, mean age 38) attending an executive MBA course at a large west coast U.S. University participated in this study. Of these, 51% were European-American, 35% East- or South Asian, and the rest were of other cultural backgrounds (e.g., European, Middle Eastern, etc.). These participants rated themselves on the cultural metacognition measures. Our<sup>1</sup> dependent measure—managers' effectiveness interacting with people from different cultural backgrounds—was rated by individuals on the other end of those relationships, namely, people of different cultural backgrounds who had worked with the focal managers. As part of their course requirement, these participants were asked to nominate up to 10 people of different cultural backgrounds with whom they have previously worked professionally, not their fellow executives in the academic context. The web survey was run by a third-party assessment firm that assured raters that their scores would remain anonymous. Participants were advised they would receive only aggregate feedback and would never learn which of their observers had filed reports. The researchers checked that the nominated

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<sup>1</sup> I am using the first person plural when describing the methods and results of all the studies in this dissertation since they involve collaborators.

“observers” reported different cultural backgrounds than the focal manager. The observers identified included peers, bosses, and subordinates. On average, 4.37 observers responded for each focal manager, resulting in a total of 188 data points. Each participant was rated by multiple observers, but these observers are unique to each participant and do not rate other participants. Rather than asking observers narrowly about their own personal experiences with the focal manager, we asked observers for their general impressions based on what they have experienced and observed, in order to more broadly capture the manager’s tendencies in intercultural interactions.

### **Key Measures**

**Cultural metacognition.** Participants rated their own cultural metacognition using a four-item metacognitive CQ scale developed by Ang, Van Dyne and colleagues (2007). These four items tap (a) updating one’s cultural assumptions during intercultural interactions (“I adjust my cultural knowledge while interacting with people from a new or an unfamiliar culture”); and (b) planning before intercultural interactions (e.g., “I develop action plans for interacting with people from a different culture”)(  $\alpha = 0.86$ ). Items were averaged to create a score for each target participant.

**Intercultural Effectiveness.** We used third-party observations to assess participants’ effectiveness in working with individuals from different culture. Specifically, the dependent measures came from peers who were of different cultural backgrounds than the participants. These observers responded to two items designed to assess participants’ effectiveness in working with people from other cultures: (a) “I think this person is highly effective working with people from a wide range of cultural backgrounds.” and (b) “I think this person is an effective manager of multi-cultural work groups.” Respondents used a 7-point scale (1 = not at all, 7 = to a great

extent). Correlation between these two items was 0.77. The ICC (2) for the scale was 0.34, revealing low levels of inter-rater agreement on the outcome variable and as a result, we have decided to use HLM analysis to account for both target level and observer level effects contributing to target's evaluations. We averaged the two items assessed by observers to compute the dependent variable.

**Control Variables.** Since an individual's intercultural effectiveness may be associated with biculturalism or past foreign experience, we also tested the model controlling for these measures. Specifically, we assessed the number of languages the participants spoke and the extent to which participants had accumulated previous experiences interacting with people from different cultures and countries. To do so, we asked participants to respond to the following questions: "to what extent do you have experience interacting with people who have different cultural backgrounds" and "To what extent to do you experience interacting with people from other countries". These items were rated on a 5-point scale ranging from 1 = no experience to 5 = very experienced. We combined these two items (correlated at 0.81) into a single indicator called "foreign experiences."

Moreover, to examine the unique role of cultural metacognition compared to other cultural intelligence dimensions, participants also completed a cultural intelligence assessment which included motivational CQ (5 items,  $\alpha = 0.78$ ), behavioral CQ (8 items,  $\alpha = 0.93$ ) cognitive CQ (6 items,  $\alpha = 0.84$ ). Each CQ factor was averaged to create a score for each participant. The descriptive statistics and correlations among the main study measures are reported in Table 1. The correlation analysis revealed that cultural metacognition was strongly associated with motivational CQ ( $r = .55, p < .001$ ), behavioral CQ ( $r = .48, p < .001$ ), and cognitive CQ ( $r = .45,$

$p < .001$ ), foreign experience ( $r = .30, p = .05$ ) and marginally associated with number of foreign languages spoken ( $r = .25, p = .10$ ).

### **Analyses and Results**

Up to 10 observers are nested within a particular respondent in the data. A methodological concern therefore was the non-independence of observations (Klein, Dansereau, & Hall, 1994). Given that peers disagreed in the criterion judgments (low ICC), we used HLM analysis to test the effectiveness hypothesis (H1a). The HLM results shown in Table 2 involve three separate regression models. In Model 1, cultural metacognition alone positively predicted intercultural performance,  $b = 0.16, p = 0.05$ . In Model 2, controlling past foreign experience and the number of languages spoken, the effect of cultural metacognition becomes stronger,  $b = .19, p = 0.03$ . In Model 3, adding other cultural intelligence factors (motivational, cognitive and behavioral), cultural metacognition remains a unique predictor of intercultural performance,  $b = .19, p = .08$ .

Model 3 also revealed that the cognitive factor marginally predicts intercultural performance,  $b = .20, p = .10$ , suggesting that more knowledge about cultures and more metacognitive awareness of one's assumptions independently contribute to better interactions.

Past research examining intercultural negotiations between non-acquainted students (Imai & Gelfand, 2010) found that the motivational and behavioral CQ dimensions helped. By contrast, our results from studies of longer term working relationships among executives found that the two dimensions related to cognition mattered. Perhaps eagerness and behavioral flexibility matter more in early impressions, but cognitive dimensions matter more for developing close working relationships.

## **Study 2**

### **The Mediating Role of Social Sensitivity**

The goal of Study 2 was to examine hypotheses H1a in a different context, managerial students on an international diverse team. Another goal was to test hypothesis H1b suggesting that heightened social sensitivity explains why individuals higher on the cultural metacognition dimension are more effective working with different culture counterparts. MBA students at an internationally diverse business school in the US were recruited to complete a survey about past work experiences that included the cultural intelligence scale. This program places students on internationally diverse learning teams who must complete assignments together. Although students from abroad face intercultural interactions ubiquitously, American students face this challenge primarily in their learning teams. Hence we focused on American students. Data from a peer rating survey completed several months later in a class provided data about how their international-student peers evaluated the focal students' social perception and their teamwork effectiveness. We hypothesized that MBA students' cultural metacognition scores would predict teamwork ratings, a criterion of intercultural effectiveness, and this would be explained by reputational social sensitivity (Davis & Kraus, 1997): ratings of social perception by a different-culture teammate. These effects should hold above and beyond effects of the three other CQ factors.

## Method

### Participants and Procedure

200 American MBA students (Males = 58.5%; Mean  $_{Age} = 27$ ; 61.3% had managed at least one employee in their previous job) were recruited to fill out an online survey as a voluntary part of their pre-MBA assignments (73% of incoming students completed the survey). Students were provided a link to an online survey that asked about their past work experiences abroad and their experiences working in multicultural work environments. The cultural intelligence measure was collected as part of this survey. Upon arrival, students were assigned to multinational learning teams of 5-6 students. Teams were created to maximize the cultural diversity of the team and typically comprised of three American students, one European student and two students from other world regions such as Africa, South-America, Middle-East, East Asia or South Asia. These teams assemble in MBA student orientation and students spend the majority of orientation activities and their first year of classes working in these teams. After two months in their international teams, 305 international student peers (from non-U.S nationalities) representing 45 nationalities evaluated target American students on a host of leadership related measures as part of a 360 leadership assessment. Each student was evaluated by between 1 and 4 different-culture peers. Student peers were asked to *anonymously* appraise their peers' levels of cooperation and their ability to accurately understand their feeling, thoughts and concerns working in these teams as part of their class assignment. Let me now describe the measures in the study in more detail.

## *Measures*

**Cultural Metacognition.** Incoming MBA students reported their cultural metacognition tendencies using a six-item scale developed by Van Dyne and colleagues (2012). The items tap (a) cultural awareness (e.g., “I am aware of how to use my cultural knowledge when interacting with people from different cultures”); (b) adjustment during intercultural interactions (“I adjust my cultural knowledge while interacting with people from a new or an unfamiliar culture”); and (c) planning before intercultural interactions (e.g., “I develop action plans for interacting with people from a different culture”). (Scale reliability:  $\alpha = .82$ ). Students’ self-reports on the six items were averaged to create a cultural metacognition score for each student.

**Reputational Sensitivity Evaluations.** After two months working in their international teams, participants were evaluated by classmates from other cultures with regard to their ability to accurately take their perspective and understand their thoughts and feelings. The items were the following: “S/he is able to empathize and understand someone else's perspective” ; “S/he misjudges people's personality and character” [Reversed]; S/he fails to realize the impact of what s/he says and does on others” [Reversed]; “S/he is good at assessing other people's strengths and weaknesses”; “S/he is good at sensing what other people are thinking and feeling” (Scale reliability:  $\alpha = .83$ ). We averaged each rater’s evaluation of each target student on these five items to create each rater’s social sensitivity score for the target student.

**Intercultural Effectiveness.** Peers also evaluated target students on two items that assessed American MBA students’ ability to work effectively in their international teams. The items were the following: “She/he is able to build effective working relationships with others who have different opinions or interests” and “She/he is able to build coalitions to get things



done” (Scale reliability:  $\alpha = .65$ ). We averaged each rater’s evaluation of each target student on these two items to create each rater’s intercultural effectiveness score for the target student.

### **Control variables**

Motivational and behavioral cultural intelligence has been found to predict intercultural cooperation tendencies (Imai & Gelfand, 2010), whereas cognitive CQ was found to be associated with more accurate intercultural judgments and decision making (Ang et al., 2007). These other three CQ factors as control variables: cognitive CQ ( $\alpha = .84$ ), motivational CQ ( $\alpha = .86$ ), and behavioral CQ ( $\alpha = .86$ ). Additionally, since student peer ratings of target students’ intercultural coordination levels may be influenced by their levels of acquaintance with target students during personal leisure activities (e.g. not during team assignments), we included raters’ familiarity with the target student as an additional control ( “how well do you know this person?”, 1 = Not at all to 4 = extremely well).

### **Results and Discussion**

Hypothesis H1a predicted that cultural metacognition would be positively associated with intercultural effectiveness. To test this hypothesis, I used HLM software to carry out the analyses (Raudenbush, 2004). I ran a linear hierarchical linear model (HLM) treating different culture student peers as nested within target American students, with student peer ratings as the dependent variable (at level 1) and cultural metacognition and the control variables as level 2 predictors. Table 1 reports the results from the hierarchical linear model analyses. Model 1 contains only the control variables whereas model 2 adds the predictor of cultural metacognition. Analyses revealed that cultural metacognition was positively associated with peers’ evaluation of target students’ effectiveness,  $B = .20$ ,  $SE = .09$ ,  $t(195) = 2.22$ ,  $p = .03$ . Thus the results provided further support for H1a.

Next, I examined whether reputational social sensitivity mediated the relationship between cultural metacognition and intercultural effectiveness (H1b). Following Baron and Kenny's procedure for mediation analyses, I found, first, that cultural metacognition (level 2 predictor) was positively associated with social sensitivity evaluations (level 1 dependent variable),  $B = .20$ ,  $SE = .09$ ,  $t(195) = 2.26$ ,  $p = .05$ . Second, when cultural metacognition and social sensitivity evaluations (mediator) were both entered into the HLM model as level 2 predictors (see Model 3), the effect of cultural metacognition turned statistically non-significant,  $B = .06$ ,  $SE = .07$ ,  $t = .90$ ,  $p = .37$  whereas the effect of social sensitivity evaluations on intercultural effectiveness remained statistically significant,  $B = .67$ ,  $SE = .04$ ,  $t = 15.01$ ,  $p < .001$ , suggesting mediation (see Figure 1 for full mediation model). A bootstrapping test with 20000 bootstrap resamples (Bernstein & Davis, 1982) confirmed a positive indirect effect of cultural metacognition on intercultural effectiveness via reputational social sensitivity (95% CI [.02, .25]). These results provide support for hypothesis H1b.

In summary, the results from study 2 provide further evidence for the effectiveness hypothesis H1a and novel evidence for the mediational hypothesis (H1b) that greater social sensitivity across cultural lines accounts for the advantage in intercultural effectiveness experienced by those higher on the cultural metacognition dimension.

## General Discussion

The results from the two studies revealed that cultural metacognition was positively associated with executives and MBAs' intercultural effectiveness, evaluated as their ability to effectively work with different-culture counterparts. The results of Study 2 further revealed that one of the pathways or mechanisms for this effect is heightened social perception sensitivity. These results are consistent with past research finding that intercultural accuracy is positively associated with the quality of social interactions with outgroup members (Q. Li & Hong, 2001). Interestingly, social acuity about different culture peers was not positively associated with cognitive CQ, but metacognitive CQ. These findings are further supported by recent research finding that cultural metacognition, but *not* cognitive CQ, is associated with (non-Chinese) MBA students' ability to accurately predict the most cherished values by Chinese students (Mor, Ames, & Joh, 2013). It appears that more knowledge about cultures in general didn't produce greater understanding about individual teammates from other cultures, rather it was more metacognition, self-awareness in applying cultural assumptions that resulted in greater perceptual understanding of individuals from other cultures.

Taken together, these finding suggests that being knowledgeable about foreign cultural values and norms and applying these assumptions to counterparts uniformly does not facilitate intercultural understanding. This is especially the case in cosmopolitan, multicultural settings -- many international MBA students are not culturally typical of their nationality, so American students' cultural generalizations (even if statistically true) may often be inapplicable to the individuals they work with in school settings.

At the same time, cognitive CQ was marginally positively associated with intercultural effectiveness among senior executives in Study 1, suggesting that cognitive CQ may be helpful

for fostering working relationships with different culture counterparts, but via an alternative mechanism than interpersonal sensitivity.

The findings from the above two studies contribute to the nascent literature examining cultural metacognition. Recent research (Chua et al., 2012) has revealed that executives with a higher proclivity toward cultural metacognition attain more creative collaboration success due to their ability to establish higher levels of affect based trust in their intercultural ties. The present research reveals that cultural metacognition not only contributes to creative collaboration, but more general intercultural effectiveness skills required for executing business goals and tasks among executives. Moreover, the present findings also contribute to research on cultural intelligence by (1) highlighting the unique role of cultural metacognition in fostering professional work relations above other CQ dimensions and (2) identifying a mediating path of enhanced levels of social sensitivity with different culture peers.

The present findings further extend past research by examining the role of cognitive based tendencies rather than affective mechanisms leading to successful intercultural professional relations. The present findings suggest that metacognitive based mechanism leading to intercultural trust and cooperation are important to examine for a number of reasons. First, similar to claims by McAllister (1981), some level of cognition-based understanding between counterparts is necessary for affect-based trust to develop . Second, negotiations scholars have found that differences in scripts impede the building of trust in intercultural negotiations (Brett & Okumura, 1998). When negotiating across cultures, negotiation counterparts do not always share the same implicit assumptions. The results from the present studies suggest that increasing the accuracy of mutual perceptions, for example, by encouraging perspective taking, may facilitate trust development. This approach concurs with the arguments of cross-cultural negotiation

practitioners (Adler & Gundersen, 2008). At the same time, future research should continue to investigate differential effects of cognitive versus affective based mechanisms in intercultural exchanges (Chua et al., 2012).

### **Limitations**

While the studies reported in this chapter mainly confirmed my predictions, they also possess some limitations. First, the measure of cultural metacognition depends on people being able to self-report their cognitive process, and introspection has limits (Nisbett & Wilson, 1977). At the same time, past research finds convergent validity between self-reports and observer reports using the cultural metacognition measures (Kim & Van Dyne, 2012).

Another issue is that the focal students examined in Study 2 were all American students (who were evaluated by different culture peers). Past research suggests that non-Western cultures have more contextualized understanding in social judgments (Morris & Peng, 1994) or perceptual accuracy of different culture counterparts (Gelfand & Christakopoulou, 1999). Future research should examine populations from various cultures to test the robustness of effects of cultural metacognitive on intercultural social sensitivity.

## **Conclusion**

The results in this chapter provided support for the unique role of cultural metacognition in fostering successful professional relations with different culture peers via enhanced levels of social sensitivity of different culture counterparts. However, it remains unknown how individuals high on cultural metacognition apply and update their cultural knowledge during and after intercultural interactions. In Chapter 3, I explore the conditions and cognitive mechanisms facilitating cultural knowledge application and updating among individuals high on cultural metacognition.

## **CHAPTER 3**

### **Cultural Knowledge Application and Updating**

#### **Abstract**

In this chapter, I examine the conditions and cognitive mechanisms underlying knowledge application and updating among individuals high on cultural metacognition. To establish my hypothesis about knowledge application (H2), I draw on theory and research on attribution processes (Trope, 1986) and stereotype application (Kunda & Spencer, 2003). To establish my claims about knowledge updating (H3a-H3c), I draw on prior research on stereotype change (Johnston & Hewstone, 1992; Weber & Crocker, 1983). I propose that individuals higher on cultural metacognition are more sensitive to the congruency of a target's observed initial behavior with a given cultural generalization, and thus exhibit more congruency contingent application and updating of cultural generalizations. I examine alternative cognitive accounts to the congruency mechanism, such as memory for incongruent information. Last, I examine the unique predictive validity of cultural metacognition above and beyond a long list of individual difference factors that might plausibly affect social judgments. The results from the present chapter suggest that individuals higher on cultural metacognition show more flexibility in managing their knowledge about other cultural groups.

The foregoing studies found that higher cultural metacognition predicts intercultural effectiveness and mediated by heightened social sensitivity evaluating different culture counterparts. In line with these findings, cultural metacognition has been found to predict less bias in estimating one's cultural knowledge (Mor, Ames, et al., 2013) and positively associated with perceivers' evaluation of one's cultural intelligence (Klafhen, 2012). Interestingly, recent studies have found that higher cultural metacognition is associated with applying cultural generalizations in judgment and decision contexts (Mor, Morris, & Joh, 2013). For example, when MBA students were asked to take the perspective of different-culture Chinese or Japanese students, individuals higher on cultural metacognition more readily imputed a relationship preserving intention, consistent with stereotypical cultural assumptions. The results from Chapter 2 and the studies above suggest that individuals high on cultural metacognition have nuanced strategies for applying and updating cultural knowledge in multicultural environments (Klafehn et al., 2008). Overall, it appears that individuals high on cultural metacognition utilize flexible strategies to apply and refine their assumptions about other cultures. We<sup>2</sup> will first review literature on attribution research and stereotype application to establish the hypotheses about knowledge application.

### **Contingent Application of Generalizations**

Research examining attribution processes among social perceivers reveals that social perceivers use behavioral and situational evidence when forming social judgments (Trope, 1986). One situational factor that may be heavily weighted when making social judgments about outgroup members is prior cultural assumptions, such as stereotypes or generalizations. Although stereotypes can be activated automatically by stereotypic cues (Bargh, Chen, & Burrows, 1996;

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<sup>2</sup> I use the first person plural as these studies involve collaborators.



Devine, 1989), often the motives of perceivers moderate their application of stereotypes to a given target. Stereotype application depends on the extent to which perceivers are driven by the goals of comprehension, self- enhancement, and the motivation to avoid prejudice (Kunda & Spencer, 2003).

One factor that can influence the application of prior cultural assumptions is their applicability; the extent to which an outgroup member's observed behavior is congruent with one's representation of how that group generally or typically behaves (Higgins & Brendl, 1995). Scholars examining expectancies similarly contend that targets who behave atypically are more surprising and more memorable (Roese & Sherman, 2007), suggesting that perceivers should be less likely to make stereotype-consistent inferences when encountering incongruent targets. However, reconciling incongruence evidence with preexisting assumptions is an effortful task (Macrae, Hewstone, & Griffiths, 1993), which depends on both motivation and cognitive flexibility.

At the same time, past research offers mixed evidence about the relationship between target behavioral congruence and knowledge application. While some individuals discount incongruent behavioral evidence as a byproduct of situational factors and hence continue to rely on their prior (erroneous) assumptions to guide their judgments (Dijksterhuis, Van Knippenberg, Kruglanski, & Schaper, 1996; Wigboldus, Dijksterhuis, & Van Knippenberg, 2003), other social perceivers, such as low prejudice individuals, are motivated to take into account counter-stereotypic information to form their judgments (Sherman, Stroessner, Conrey, & Azam, 2005). Aside from factors associated with perceivers' motivation, cognitive resources also play a role in processing incongruent evidence. More specifically, cognitive load constrains individuals' ability to process incongruent evidence (Macrae et al., 1993).

More recently, cultural intelligence scholars have suggested that individuals high on cultural metacognition possess both the motivation and cognitive aptitude necessary to process incongruity between prior cultural assumptions and outgroup members' behavior. For example, cultural metacognition is expected to be associated with active monitoring of the applicability of one's cultural preconceptions (Van Dyne et al., 2012). Individuals high on cultural metacognition are expected to be highly apt and motivated to identify incongruence as a result of monitoring for inconsistencies. Recent work suggests that higher metacognition is associated with greater accuracy about cultural knowledge (Klafehn, Chenchen, & Chiu, 2013). Taken together, we expect that individuals higher on cultural metacognition should halt the application of generalizations to the extent that they observe disconfirming behavioral evidence.

Contingent application of generalizations should work in both directions when evaluating a target's congruency. In other words, individuals higher on cultural metacognition should also be more highly attentive to highly *congruent* behavioral evidence. For example, prior research reveals that individuals higher on metacognition utilize culture-specific assumptions about East Asian counterparts when stereotypical cues are salient (Mor, Morris, et al., 2013). While social psychology research often presumes that applying a generalization is bad for interpersonal interaction, as these were often examined in the context of racial generalizations<sup>3</sup> (Devine, 1989), international management scholars have claimed that applying cultural generalizations can assist managers in coordinating with others and avoiding offense, given differences in business etiquette and style associated with national cultures (Osland & Bird, 2000). Adler (2008) further encourages the use of "helpful stereotypes" -- accurate descriptions of a behavioral norm of a

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<sup>3</sup> We would like to acknowledge that when discussing application of cultural generalizations, we are not referring to racial generalizations nor endorsing applications of such generalizations.

specific culture that can be modified based on further observations and experience. Thus, we further suggest that individuals high on cultural metacognition would be inclined to apply prior cultural assumptions to outgroup targets to the extent that initial behavioral observations suggest their applicability.

In sum, we propose that individuals higher on cultural metacognition engage in more contingent application of prior knowledge of cultural patterns by revealing greater sensitivity to the congruency of their prior knowledge with observed behaviors. We will refer to cultural assumptions as “generalizations” rather than stereotypes, so as not to prejudge them. Also, we focus on the context of a businessperson visiting a culture for the first time, in which the perceiver’s generalization comes from pre-trip reading rather than from long-term exposure to discourse about the outgroup. This context enables manipulation of the experimental conditions under which we examine our hypotheses. I summarize my predictions about knowledge application in the following hypothesis:

***Hypothesis 2:*** Perceivers higher in cultural metacognition are more (less) likely to attribute generalization-consistent characteristics to a target to the extent that the target’s observed behavior is congruent (incongruent) with the generalization.

Just as congruency should matter more to higher cultural-metacognition perceivers in applying a generalization, so too should it matter more in their updating of the cultural generalization after the interaction. These assumptions about the conditions facilitating updating of prior cultural generalizations are in line with assumptions about stereotype change proposed by the bookkeeping model of stereotype change. This model views stereotype change as an incremental process in which each instance of stereotype relevant information is used to modify the existing stereotype (Brewer, Dull, & Lui, 1981; Taylor, 1981).

### **Updating Generalizations**

While in the prior section we suggested that behavioral evidence (such as a target's congruence with a prior cultural generalization) leads to contingent application, we also expect that behavioral evidence about the outgroup will lead to updating of cultural generalizations among individuals higher on cultural metacognition.

One factor that can trigger individuals to update their prior cultural assumptions is disconfirming evidence. For example, early work on stereotype change revealed that stereotype disconfirmers with high typicality (e.g., White, middle-class, high-earning lawyers) were more successful at bringing about stereotype change compared to disconfirmers with low typicality (e.g., Black lawyers) (Weber & Crocker, 1983). Similarly, more recent work reveals that perceivers who consider a stereotype-disconfirming outgroup member as a typical member of the group change their stereotype more relative to those who perceive the exemplar to be a non-typical member of the group (Johnston & Hewstone, 1992; Kunda & Oleson, 1997). More recent research on stereotype change suggests that exposure to incongruent outgroup members

facilitates member-to-group generalizations (Paolini, Crisp, & McIntyre, 2009) and promotes perceived group variability (Garcia-Marques & Mackie, 1999).

At the same time, not all social perceivers update their assumptions when faced with disconfirming evidence. For instance, prior research finds that individuals high on prejudice fence off disconfirming evidence after learning about targets who plainly disconfirm their prior assumptions (Sherman et al., 2005). Other scholars have revealed that individuals are prone to engaging in subtyping disconfirming targets, and hence discount evidence that would entail revising prior assumptions (Brewer et al., 1981; Taylor, 1981). More importantly, most resistant to change is one's attitudes or beliefs about the *outgroup entirely*; even when individuals change their attitudes toward individual targets, attitudes toward the group as a whole generally do not follow (Hewstone & Brown, 1986; Rothbart & John, 1985).

Research on individual differences has identified a number of dimensions that moderate individuals' susceptibility to stereotype change. For example, people who are more tolerant of ambiguity and less likely to seek structure are more inclined to integrate incongruent evidence and update their assumptions about outgroups (Dijksterhuis et al., 1996; Schaller, Boyd, Yohannes, & O'Brien, 1995). With regards to attitudes, individuals low on prejudice are more inclined to integrate incongruent evidence into judgments (Sherman et al., 2005) and seek disconfirming evidence (Wyer, 2004). Extending past research, we propose that cultural metacognition moderates updating. More specifically, greater awareness of one's assumptions and the ability to monitor their applicability should lead individuals high on cultural metacognition to update their assumptions as a function of behavioral congruence. Importantly, higher cultural metacognition should matter in responsiveness to both *congruent* and *incongruent* targets. In other words, since individuals high on cultural metacognition hold more accurate

cultural assumptions, they should be inclined to update their knowledge when both confirming and disconfirming evidence is present. This assumption is also consistent with past research on stereotype change finding that individuals can utilize highly congruent observations as evidence to confirm one's assumptions or update one's assumptions about the extremity of a trait or behavior among a group (Dolderer, Mummendey, & Rothermund, 2009). To summarize our claims, we formulated them in three main hypotheses. The first hypothesis proposes that individuals higher on cultural metacognition would be more inclined to update their assumptions about the *outgroup* after learning about a target who disconfirms or confirms their prior assumptions.

***Hypothesis 3a:*** Perceivers higher in cultural metacognition are more (less) likely to attribute generalization-consistent characteristics to a *group* after learning about a target whose behavior is congruent (incongruent) with the generalization.

### **Expectancies**

Updating assumptions about an outgroup's traits and behaviors can also lead individuals to update their *expectancies* (for a review, see Roese & Sherman, 2007) about novel outgroup members. Expectancies are beliefs people hold about future events. Past research reveals that group stereotypes guide perceivers' expectancies about outgroup members' behaviors (Hamilton, Sherman, & Ruvolo, 1990) and expectancies cause individuals to interpret ambiguous behaviors by others as expectancy consistent (Darley & Gross, 1983; Sagar & Schofield, 1980; Taylor, Fiske, Etcoff, & Ruderman, 1978). Earlier we have proposed that individuals higher on cultural metacognition are more likely to integrate behavioral information about the outgroup into judgments (H2) and update their assumptions about the tgroup (H3a). In line with these assumptions and past research, we would also expect that individuals higher on cultural

metacognition would also be more likely to revise their *expectancies* about new outgroup members. As a result, we propose two hypotheses about the role of a target's behavior in revising expectancies. First, we propose that the behavior of an outgroup target would lead individuals higher on cultural metacognition to revise their expectancies about the behavior of a new outgroup member (H3b). Second, we expect that this effect would be explained by updating one's assumptions about the outgroup (H3c). We summarize these propositions in the two hypotheses below.

***Hypothesis 3b:*** Perceivers higher in cultural metacognition are more (less) likely to expect that a *novel group member* possesses generalization-consistent characteristics after learning about a target whose behavior is congruent (incongruent) with the generalization.

***Hypothesis 3c:*** The relationship between cultural metacognition and expectancies about the characteristics of a novel target (predicted in hypothesis 3b) will be mediated by judgments of the outgroup characteristics.

### **The Present Research**

To test the knowledge application and knowledge updating hypotheses (H2 and H3a-H3c), we designed a study in which participants were introduced to a fictitious group, the Jamayans, and read about a target person (Jay) from that culture. The study used a novel fictitious outgroup (Leader, Mullen, & Rice, 2009; Lyons & Kashima, 2003) to examine social cognitive processes as this method provides a uniform baseline for the content and valence of a generalization across all participants. In this study, participants first learned about Jamayan behavioral etiquette and norms (indirectness) by reading five statements about Jamayan behavioral traits endorsed by cultural experts. Following this description of the Jamayan cultural traits, participants learned about an outgroup target who exhibited behaviors that were either congruent or incongruent with Jamayan behavioral norms that were described at the outset. Subsequently, participants made judgments about the observed Jamayan target and Jamayans as a whole. Moreover, participants reported their expectancies about the behavior of a new target. Several of the generalizations about Jamayans corresponded to a high context (Hall, 1976) or indirect communication style (Gudykunst et al., 1996). To illustrate this dimensions, Dutch and Israeli cultures are among the most direct, Indonesian and Japanese cultures are among the most indirect.



### Study 3

#### Generalization-Target Congruency

Participants took the role of a manager preparing for a negotiation in an unfamiliar country, Jamaya. They read some generalization about Jamayans, attributed to academic experts, which emphasized an indirect communication style. They then read about some examples of behavior by Jay, the individual Jamayan they were to negotiate with. In one condition, Jay's behavior was congruent with the major theme of the generalizations; in the other condition, it was not. We examined how the congruency of the observed target's behavior affected participants' use of the previously learned generalization in their judgments about the characteristics of Jay, Jamayans (the outgroup as a whole), and a novel Jamayan.

#### Method

**Participants and Design.** 79 Mechanical Turk American participants ( $M_{Age} = 32.05$ ; 59.5% females; Ethnicity: 75.9% =White/Caucasian; 8.9%= Asian; 6.3=Hispanic; 5.1%= African American; 2.5% = Other; 1.3%= Native American) completed a two part study. Participants were randomly assigned to one of the conditions of the 2 (generalization congruent target, generalization incongruent target) factorial design.

**Procedures.** The study was carried out as a two-part study. First, participants completed an online survey that included a cultural intelligence assessment (Van Dyne et al., 2012). A few days later, participants were sent a link to the second part of the study (via an online survey) where they read about going for a business meeting to Jamaya, a fictionalized culture created for the purpose of the study (see Appendices A-E for study materials). Participants read materials that their company prepared for them about Jamaya, which conveyed five generalizations about Jamayans, attributed to academic experts. The first and the last statements described indirect

communication tendencies (the behavioral dimension on which our design hinges) whereas the middle three points were filler statements about typical occupations and avocations. Pre-tests<sup>4</sup> revealed that participants regarded such professors as a credible source.

## Materials

**Cultural Metacognition.** In part I, participants completed a personal assessment which included the cultural metacognition scale (Van Dyne et al., 2012). The scale was comprised of nine<sup>5</sup> items. Examples of statements include: (1) “I develop action plans before interacting with people from a different culture” ; (2) “I am aware of how my culture influences my interactions with people from different cultures”; (3) “I adjust my understanding of a culture while I interact with people from that culture” (1= strongly disagree, 7= strongly agree). The nine items were averaged to create a score for each participant (Scale reliability:  $\alpha = .90$ ).

**Outgroup Generalization.** The outgroup was described as possessing indirectness in communication and behavior (verbal and non-verbal). These traits and behaviors are associated with a high context (Hall, 1976) or indirect communication style. The behavioral characteristics were placed first and last in the list to leverage the serial position effect on recall; filler items were placed in between (see Appendix A). All participants were given a minimum viewing time of 20 seconds to read these five statements.

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<sup>4</sup> A pre-test to evaluate the credibility of the source endorsing the expectation about the outgroup asked Mechanical Turk participants the following question: “Do you think professors who study Jamayans have accurate knowledge about Jamayan culture?” .A one sample t-test revealed that participants evaluated Professors as a source who possess accurate knowledge about Jamayan culture (1=strongly disagree, 3= neither agree nor disagree, 5=strongly agree;  $M= 3.68$ ,  $SD=0.91$ ),  $t(129) = 8.50$ ,  $p < .001$ ).

<sup>5</sup> A new version of the cultural intelligence scale was published (Van Dyne et al., 2012) just before we begun collecting data for Study 3 and thus we administered to participants the nine item version of the metacognitive CQ scale rather than the previous six item version.

**Manipulation of Target's Behavior.** After exposure to the outgroup generalization, participants heard about behavior of Jay, the Jamayan they would be dealing with. In the congruent condition (See Appendix B), Jay exhibited behaviors consistent with an indirect communication style (e.g. "I averted my eyes while asking for the raise") whereas in the incongruent condition Jay exhibited behaviors consistent with a more direct communication style (e.g. "I asked my boss for a raise while looking at him directly in the eye") (See Appendix C for full details).

### **Dependent Measures.**

*Judgments of Observed Target.* After receiving the generalization about Jamayans and some first-person behavioral evidence about Jay as an individual's behavior, participants then rated Jay (the observed target) on six behavioral items associated with the Jayaman behavioral etiquette (indirectness).

- (1) Believes personal space and privacy is of utmost important;
- (2) Is polite;
- (3) Greets acquaintances with a nod;
- (4) Avoids direct confrontation in personal as well as professional matters;
- (5) Avoids eye gaze; and
- (6) Directly confronts people about issues that bother him (Reversed).

Ratings were made on agreement scale (1= strongly disagree; 7= strongly agree).

Exploratory factor analysis (Varimax rotation) on the six behavior items revealed one principle component that explained 70% of the variance (item loadings all > .67). These six judgments were averaged to create a score assessing participants attribution of indirectness to the observed target ( $\alpha = .91$ ).

*Judgments of Outgroup.* Next, participants were asked to rate *Jamayans* in general on the same six items reported above using a seven point scale (1= strongly disagree, 7 = strongly agree). Again, exploratory factor analysis (Varmiax rotation) revealed a single component that accounted for over 70% of the variance (item loadings all  $> .56$ ) ( $\alpha = .91$ ). These six judgments were averaged to create a score assessing participants' judgments of the outgroup's indirectness.

*Expectations about a Novel Target.* Finally, participants were told about an upcoming meeting with another Jamayan rug dealer from a different company, named Nan (see Appendix D for a description of the task), and were asked to guess Nan's characteristics on the same items they evaluated the target and outgroup. Exploratory factor analysis (Varmiax rotation) revealed a single component that accounted for over 73% of the variance (item factor loadings were all above  $.59$ ) ( $\alpha = .91$ ). These six judgments were averaged to create a score assessing participants' expectations about a novel target's indirectness.

**Manipulation Checks.** After the dependent measures, participants were asked to what extent they thought Jay exemplifies a typical Jamayan (1= strongly disagree; 5 = strongly agree); and lastly, to what extent Jay's behavior was consistent with the generalization about Jamayans they read at the beginning of the study (1=strongly disagree; 5 = strongly agree).

## Results

**Manipulation Checks.** A one-way ANOVA revealed a main effect of target behavior (0 = congruent, 1= incongruent) on participants' evaluations of Jay as a typical Jamayan,  $F(1, 77) = 8.75, p < .001$ . Participants in the congruent condition evaluated Jay (the target) as more typical ( $M = 3.49, SD = 1.01$ ) than participants in the incongruent condition ( $M = 2.76, SD = 1.16$ ). Similarly, participants in the congruent condition reported Jay's behavior was more consistent with the generalization about Jamayans presented in the beginning of the study ( $M =$

3.49,  $SD = 1.01$ ) than participants in the incongruent condition, ( $M = 1.85$ ,  $SD = 1.11$ ),  $F(1, 77) = 38.79$ ,  $p < .001$ . The results above confirmed that the target's congruency with the behavioral generalization about Jamayans was successfully manipulated.

**Judging the Observed Target Person.** To test hypothesis 2 concerning application of the generalization in judging the observed target (i.e., Jay), we regressed participants' judgment on target behavior (0 = incongruent, 1 = congruent), cultural metacognition (centered) and their interaction (see Table 4). The results revealed a main effect of target behavior,  $b = .77$ ,  $p < .001$ , a negative main effect of cultural metacognition,  $b = -.22$ ,  $p = .03$  and a two-way interaction,  $b = .28$ ,  $p = .01$ . Simple slope analysis revealed that in the congruent condition (where target behavior accorded with the cultural generalization) cultural metacognition was positively associated with indirectness judgments,  $b = .31$ ,  $p = .04$ . In the incongruent condition (where the target displayed behavior that contradicted the generalization), cultural metacognition was *negatively* associated with indirectness judgments,  $b = -.32$ ,  $p = .06$  (see Figure 2).

These results provide initial support for hypothesis 2 that individuals higher in cultural metacognition take into account a target's behavior when determining whether or not to apply a group generalization (such as indirect communication style) when judging the target. When the target's behavior fit the generalization, high metacognition perceivers judged the target as more indirect than low cultural metacognition perceivers. In contrast, when the target's behavior did not fit the generalization, high metacognition perceivers judged the target as less indirect (e.g. more direct) than perceivers lower on cultural metacognition.

*Perceived Congruency.* We further examined whether perceived congruency (between the generalization and the target's behavior) mediate indirectness judgments of the target. To do so, I conducted multiple regression analyses regressing perceived congruency on the target

condition, cultural metacognition scores (centered) and their respective two way interaction. Results revealed a main positive effect of congruency condition,  $b = .60, p < .001$ , and a negative main effect of cultural metacognition,  $b = -.32, p = .01$  qualified by a significant two-way interaction,  $b = .36, p < .001$ . Simple slope analysis revealed that in the target congruent condition, cultural metacognition was marginally positively associated with perceived congruency,  $b = .23, p = .13$ , while in the incongruent condition, cultural metacognition was negatively associated with perceived congruency,  $b = -.44, p = .01$  (see Figure 3).

*Mediation Analysis.* To test whether perceived congruency explained judgments of target indirectness (reported earlier), I conducted mediated moderation analysis. To do so, I entered the congruency evaluation scores as an additional covariate to the regression model containing the target condition, cultural metacognition and their respective two-way interaction. Results revealed that the two-way interaction between cultural metacognition and target condition turned statistically non-significant,  $b = .08, p = .28$ , while the main effect of congruency evaluations remained significant,  $b = .57, p < .001$ , suggesting mediation (see Figure 4). Follow-up bootstrapping analysis with 5000 resamples revealed a significant indirect effect of perceived congruency on indirectness judgments, mean indirect effect = 0.51, 95% CI [0.08, 0.85]).

These mediation results provide further support for hypothesis 2 suggesting that individuals high on cultural metacognition are more likely to be sensitive to the congruency between a cultural generalization and a target's behaviors. Importantly, the results suggest that congruency monitoring is one psychological mechanism that can facilitate contingent application of the generalization to the target by individuals high on cultural metacognition. However, we would like to note that studies on stereotype change which have tested for reverse mediation between our proposed mediator and dependent variable often find a bidirectional association

between stereotypical judgments and perceived typicality of the target (Hewstone & Hamberger, 2000; Maurer, Park, & Rothbart, 1995). This issue similarly applies to our results; we cannot be fully certain whether an explicit process of typicality/congruency coding precedes the application of the generalization in judgment, but we rely on logic to support our assumptions for testing the above mediation model.

**Judging the Outgroup Generally.** Next, I sought to test the updating hypothesis (H3a) which proposed that individuals high on cultural metacognition would be more (less) likely to attribute generalization congruent characteristics (i.e. indirectness) to the *outgroup* when a target displays generalization congruent (incongruent) behavior. To do so, I conducted multiple regression analyses examining attribution of indirectness to the outgroup. To do so, I entered into a multiple regression analysis the target condition (0= generalization incongruent target, 1= generalization congruent target), cultural metacognition scores (centered) and their respective two way interaction. Results revealed a main positive effect of the target condition,  $b = .23$ ,  $p = .04$ , and a negative main effect of cultural metacognition,  $b = -.34$ ,  $p = .03$  qualified by a marginally significant two-way interaction,  $b = .27$ ,  $p = .08$ . Simple slope analysis revealed that when the target displayed behavior that was congruent with the generalization (e.g. indirect), there was no association between cultural metacognition and judgments of the outgroup's indirectness,  $b = .06$ ,  $p = .68$ , while when the target displayed generalization incongruent behavior (i.e., direct), cultural metacognition was *negatively* associated with judgments of the outgroup's indirectness,  $b = -.31$ ,  $p = .07$ , suggesting individuals high on cultural metacognition updated their cultural assumptions about the extremity of the outgroup's indirectness (see Figure 5).

These results provided initial support for hypothesis 3a suggesting that individuals high on cultural metacognition are more likely to update their cultural assumptions when behavioral evidence disconfirms expectancies about the outgroup's behavior. At the same time, I didn't find evidence that individuals high on cultural metacognition updated their assumptions about the outgroup when behavioral evidence confirmed expectancies (e.g. in the congruent target condition). I will discuss this null result in the discussion section.

**Expectations about a Novel Target Person.** Next, I tested hypothesis 3b suggesting that the observed target's behavioral congruency (e.g. directness or indirectness of the target) would also effect the expectations of high metacognition individuals about the behavior of a new outgroup target (a Jamayan rug trader called Nan). To do so, I conducted multiple regression analyses regressing participants expectations about the indirectness of a novel target on the target condition, cultural metacognition scores (centered) and their respective two way interaction. Results revealed a main positive effect of target condition,  $b = .24, p = .03$ , and a negative main effect of cultural metacognition,  $b = -.38, p = .01$  qualified by a significant two way interaction,  $b = .33, p = .03$ . Simple slope analysis revealed that when the target displayed indirect behavior (e.g. congruent condition), there was no association between cultural metacognition and indirectness expectations about a novel target,  $b = .11, p = .48$ , but when the target displayed direct behavior (i.e., incongruent condition), cultural metacognition was *negatively* associated with indirectness expectations,  $b = -.37, p = .03$  (see Figure 6). These results provided partial support for hypothesis 3b revealing that individuals high on cultural metacognition weighted more heavily the incongruent behaviors of a target when forming expectations about the characteristics of a new outgroup target.



*Mediation Analysis.* Hypothesis 3c suggested that updating one's assumptions about the characteristics (i.e., indirectness) of the outgroup may explain subsequent expectations about the behavior of a new outgroup target. To test this hypothesis, I ran mediated moderation analysis and entered in a regression model the target condition, cultural metacognition and their respective two-way interaction, and included participants judgments of outgroup indirectness as a covariate. Results revealed that the two-way interaction between cultural metacognition and target condition turned statistically non-significant,  $b = .17$ ,  $p = .17$ , while the main effect of outgroup judgments on indirectness expectations remained statistically significant,  $b = .57$ ,  $p < .001$ , suggesting mediation (see Figure 7). Follow-up bootstrapping analysis with 5000 resamples revealed a marginally significant indirect effect of outgroup judgments on expectations about a new target, mean indirect effect = 0.22, 95% CI [-0.01, 0.52]). Thus, the results provide support for hypothesis 3c that updated assumptions about an outgroup's characteristics (e.g. "Jamayans are less likely to be indirect") explained expectations about a novel outgroup members (e.g. "Nan is less likely to be indirect").

## Discussion

The results of Study 3 provide full support for the cultural knowledge application hypothesis (H2) and partial support for the cultural knowledge updating hypotheses (H3a-H3c). Counter to our expectations, Study 3 revealed no differences between individuals high versus low in cultural metacognition in knowledge updating when the observed target displayed generalization congruent behavior. One account for the null effect of the congruent target condition on knowledge updating of individuals high on cultural metacognition is that impression management concerns or fear of appearing prejudiced (e.g. endorsing a cultural generalization), may have suppressed these judgments about the group and their expectations upon meeting a new outgroup member. Thus, the design of Study 4 will attempt to address this issue.

While Study 3 provided support for our hypotheses, no design can rule out all possible alternative accounts. A skeptic might argue that individuals high on cultural metacognition are simply more attentive to behavioral evidence. In other words, if individuals high on cultural metacognition are simply highly attentive to behavioral evidence, then the mere presence of an outgroup member's behavior (and not congruency of the behavior with prior assumptions), could drive the effects on judgments. Of course, our mediational evidence weighs against this interpretation by suggesting individuals high on cultural metacognition are more sensitive to congruency, but like all mediational evidence, it is merely suggestive with regard to mechanisms, not definitive. Another similar alternative account could be that higher metacognition is associated with better memory for behavioral evidence and hence greater weight placed on it. In either case, these alternative explanations show us that the Study 3 design does not prove that individuals higher on cultural metacognition differed in their use of the generalization as a basis

to judge behavior. It is possible, if not overly plausible, that they just differ in their processing of behavioral evidence and that accounts for their different judgments of targets and differential updating of generalizations. A different design in Study 4 addresses this limitation.

## Study 4

### The Role of Prior Knowledge

Study 4 was designed to rule out several alternative explanations left open by Study 3. First, while Study 3 revealed that individuals higher on cultural metacognition were more affected by a target's incongruent behavior, it remains unknown whether the mechanism driving these effect is (1) the *congruency* of target behavior with the perceiver's assumptions about general tendencies of the outgroup, or (2) the direct *evidence* provided by the target's behavior. Thus, in the present study, we manipulated whether participants were given a group generalization before encountering target behavior. This allows us to see whether higher metacognition matters in response to the behavioral evidence itself or in response to the combination of prior knowledge and behavioral evidence. This question is also especially important to examine given the scarcity in social psychology research examining whether group based generalizations can crystallize or be revised solely based on exemplar based information without any prior existing expectancies (for a review, see Hilton & Von Hippel, 1996).

Second, study 3 found that higher metacognition individuals were more inclined to update their generalization (i.e., applying generalizations less) when learning about target incongruent behaviors. At the same time, we did not find difference in updating between individuals high versus low on cultural metacognition when learning about target *congruent* behaviors. Past research on impression management and stereotype application finds that stereotypes are applied more in private<sup>6</sup> than public (Plant & Devine, 1998). So perhaps impression management behaviors masked the part of the predicted interactions that did not

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<sup>6</sup> We would like to thank Negin Toosi for bringing this literature to our attention.

show. Thus, following procedures by Plant and Devine (1998), the design of the present study emphasized to participants that their responses were private and anonymous. Moreover, instructions requested that participants report their honest opinions when making judgments in the study (see Appendix E).

An alternative mechanism to the proposed congruency evaluation mechanism we hypothesize is heightened memory for generalization congruent and incongruent evidence. If individuals higher on metacognition have better memory for culture specific behaviors, this advantage would promote their ability to engage in contingent application and updating of outgroup knowledge. We were interested in testing this alternative psychological mechanism and explored whether differential memory based inferences could explain the mechanism driving our hypotheses and results.

Finally, it is important to isolate cultural metacognition from other individual difference dimensions that might be the true drivers of the hypothesized effects. To do so, we looked at dimensions previously associated with cultural metacognition, inclination to endorse or revise stereotypes, as well as overall intercultural effectiveness. For example, past research has found that cultural metacognition is positively associated with conscientiousness, openness to experience, agreeableness, and extroversion, but past work has not examined whether cultural metacognition affects judgment patterns above and beyond these personality factors (Ang, Van Dyne, & Koh, 2006). Similarly research examining cross-cultural effectiveness has found that general intelligence (IQ) is positively associated with cross-border effectiveness (Rockstuhl et al., 2011) which may suggest that IQ may be involved with cultural knowledge monitoring and updating. Thus, to examine related individual difference factors, we administered 15 individual difference measures to examine whether cultural metacognition has a unique role in explaining

cultural knowledge application and updating, above and beyond related individual difference factors.

## **Method**

**Participants and Design.** 169 Columbia University students who identify as American and are native English speakers (66% =women;  $M_{Age} = 21.09$  years,  $SD = 4.49$ ) completed a two part study for pay. Participants were randomly assigned to conditions of the 2 (generalization: absent, present) X 2 (target behavior: direct, indirect) design. Descriptions of direct and indirect communication behaviors were the same as in Study 3.

**Experimental Design.** The procedures for this study were similar to Study 3. A week before Part II, participants completed the first part of the study: an online survey that was presented as a personal assessment.

*Pre-Study Measures.* The following individual difference measures were administered to participants in the pre-study survey: 10Item Big Five Personality measure (openness:  $\alpha = .42$  ; extroversion:  $\alpha = .76$ ; emotional stability:  $\alpha = .72$ ; agreeableness:  $\alpha = .50$ ; conscientiousness:  $\alpha = .65$ ; 1-7 Likert scale) (Gosling, Rentfrow, & Swann, 2003), the 15-item version of the Need for Closure scale ( $\alpha = .87$ ) (Roets & Van Hiel, 2011), cultural intelligence scale (cultural metacognition:  $\alpha = .80$ ; cognitive CQ:  $\alpha = .91$ ; motivational CQ:  $\alpha = .84$ ; behavioral CQ:  $\alpha = .89$ ) (Van Dyne et al., 2012), the 10 item Rosenberg Self-Esteem scale ( $\alpha = .89$ ) (Rosenberg, 1965), the 11 item regulatory focus questionnaire (promotion focus:  $\alpha = .59$  ; prevention focus:  $\alpha = .76$ ) (Higgins et al., 2001), in addition to a brief demographics questionnaire.

*Pre-Study Instructions.* We included instructions in the beginning of the study to advise participants we were interested in their honest options about the individuals they met in the study (see Appendix E) and made sure participants were aware that their personal information would

not be traced to their responses in the study by providing them with anonymous ID numbers in the beginning of the study.

*Study Materials.* Part II involved the same scenario as in Study 3 about a business meeting in Jamaya, a fictionalized culture created for the purpose of the study. Participants in the generalization present condition first learned about Jamayans culture by reading five cultural general statements about this group (same as Study 3). Participants in the generalization absent condition received no information about Jamayan culture before learning about the behavior of Jay, their Jamayan business partner. The follow-up materials and procedures were identical to Study 3 with the exception that participants were asked to make memory based inferences about the behavior of the target in the vignette at the end of the study (items measuring memory based inferences about the target's indirectness presented in the vignette).

*Post Study Measures.* At the end of the study<sup>7</sup>, participants were asked to complete the 60-item Raven Colored Progressive Matrices to measure IQ ( $\alpha = .87$ ) (Raven & Court, 1998) and the Snyder 25-item Self-Monitoring Scale ( $\alpha = .67$ ) (Snyder, 1974). Upon completion of the survey, participants were able to ask for debriefing or further information on the study through email, thanked, and given monetary compensation for their time.

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<sup>7</sup> Some participants were not able to complete the Raven and Self-monitoring measures in the lab owing to time and were sent a follow-up survey. The total number of participants who completed the Raven test is  $n=130$  and the total number of participants who completed the self-monitoring scale is 129.

## Materials

**Outgroup Generalization Manipulation.** Participants were randomly assigned to either the generalization absent or present condition. Participants in the generalization present condition were asked to read a report by experts of Jamayan culture (Professors who study Jamayan culture) about the behavioral styles, communication techniques and preferences' of Jamyans using the same materials and procedures as in Study 3. The rest of participants (e.g. generalization absent condition) were not presented with these materials and thus had no prior information about the Jamayan cultural characteristics before their business meeting with Jay (the target) in Jamaya.

**Manipulation of Observed Target's Behavior.** Next, participants were advised they will be meeting with Jay, a Jamayan from a rug company in Jamaya to have lunch. As in Study 3, Jay was described in five situations that happened to him at work the previous day. The materials used included the same materials as used in Study 3; participants were randomly assigned to read about an indirect target (referred to as the congruent target in Study 3) or to a direct target (referred to as the incongruent target in Study 3).

### **Dependent Measures.**

The dependent measures were parallel to those administered in Study 3.

*Judgments of Observed Target.* Participants were asked to evaluate Jay (outgroup target) on six traits and behaviors consistent with indirect behavioral characteristics (e.g. polite, formal, conflict avoidant). Items included the same statements as Study 3 (1= strongly disagree; 7= strongly agree). Exploratory factor analysis (Varmiax rotation) on the six items revealed one principle component explaining 57% of the variance in items (all item factor loadings >.63).



These six judgments were averaged to create a score assessing participants attribution of indirectness to the target ( $\alpha = .85$ ).

*Judgments of Outgroup.* Next, the participants were asked to evaluate *Jamayans* on the same six statements reported above using a seven point scale (1= strongly disagree, 7= strongly agree). Exploratory factor analysis (Varimax rotation) on the six items revealed one principle component explaining 59% of the variance (all item factor loadings  $>.61$ ). These six evaluations were averaged to create a score assessing participants attribution of indirectness to the outgroup's ( $\alpha = .86$ ).

*Expectations about a Novel Target Person.* Next, the participants were asked to evaluate a novel target (*Nan*) on the same six statements reported earlier using a seven point scale (1= strongly disagree, 7= strongly agree). Exploratory factor analysis (Varimax rotation) on the six items revealed one principle component which explained 60% of the variance (all item factor loadings  $>.54$ ). These six evaluations were averaged to create a score assessing participants expectations about the indirectness of a new outgroup target ( $\alpha = .86$ ).

**Memory Based Inferences of the Observed Target's Indirectness.** At the end of the study, participants were asked to make evaluative judgments based on their memory about the observed target's behaviors (Jay) in the vignette. Participants evaluated the observed target's communication style, formality and maintenance of physical distance with his boss by responding to the following six items: "In the scenario you read was Jay..." (1) formal with his boss? (2) rude to his boss? (Reversed), (3) direct in his communication with his boss? (Reversed), (4) acting casual with boss? (Reversed), (5) displaying offensive gestures towards his boss? (Reversed); (6) keeping physical distance from his boss? An exploratory factor analysis (Varimax rotation) revealed that the items loaded into one factor which explained 59% of

variance (all item loading  $> .57$ ). These six items were averaged to create a measure assessing participants' memory based judgments of the target's indirectness.

## Results

### Judgments of the Observed Target.

*Preliminary Analysis.* Prior to testing my main hypotheses, I explored the effects of my two experimental manipulations on judgments of the observed target's indirectness. To do so, I conducted multiple regression analyses regressing participants evaluations of the target's indirectness on the target behavior condition (0 = direct, 1= indirect), prior generalization condition (0= absent; 1= present), cultural metacognition scores (centered) as well as their respective interactions (see Table 5: Model 1). I first explored the lower order effects to have a better understanding of how the presence versus absence of a prior generalization affected participants' judgments of the target's indirectness. The results revealed a positive effect of the indirect target behavior,  $b = .51, p < .001$  and a marginally significant negative effect of the prior generalization,  $b = -.13, p = .10$ , qualified by a significant two way interaction between the two conditions,  $b = .24, p = .02$ .

To explore this two way interaction, I examined the target behavior separately. Simple slope analysis revealed that for indirect behavior targets, the presence of a generalization about group indirectness increased the ascription of indirect characteristics to the target person ( $M_{present} = 5.00, SD = 1.12$ ; ( $M_{absent} = 4.61, SD = 1.00$ ),  $t(85) = -1.68, p = .10$ . For direct behavior targets, the presence of a generalization about group indirectness decreased the ascription of indirect characteristics to the target person ( $M_{present} = 2.76, SD = 1.19$ ; ( $M_{absent} = 3.17, SD = 0.78$ ),  $t(80) = 1.82, p = .07$ . These results reveal that the target's observed behavior matters more in the context of a prior generalization about the target's group.

Central to our hypothesis about the differential sensitivity to congruency of low versus high cultural metacognition perceivers, we further explored if cultural metacognition moderated the interaction between target and generalization condition. In other words, if application of generalizations by individuals higher on metacognition hinges on congruency, then we should expect metacognition to moderate the effects of target behavior on judgments of the target in the generalization present condition but *not* in the generalization *absent* condition.

*Hypotheses Testing.* Next, I proceeded to testing the knowledge application hypothesis (H2). To do so, I examined the three way interaction between the target condition, generalization condition, and cultural metacognition (Table 5: Model 1). Multiple regression analyses revealed a marginally significant three way interaction,  $b = .19, p = .09$ . To unpack this three way interaction, I split the data by generalization condition (absent, present). Hence, I examined the two way interaction between target condition and cultural metacognition when generalization was present versus absent.

In the generalization present condition, analysis revealed a significant two-way interaction between the target condition and cultural metacognition,  $b = .24, p = .03$ . In the generalization absent condition, analysis revealed a non-significant interaction between target condition and cultural metacognition,  $b = -.02, p = .89$ . Follow-up simple slope analysis in the *generalization condition* revealed that when the target behavior was indirect (e.g. congruent with the generalization), cultural metacognition was marginally positively associated with application of indirectness characteristics to the target,  $b = .24, p = .10$ . At the same time, when the target's behavior was direct (e.g. incongruent with the generalization), cultural metacognition revealed a negative trend with application of indirectness characteristics to the target,  $b = -.22, p = .15$  (see Figure 8). These results support hypothesis 2 and complement the results of Study 3 as they

reveal that individuals high on cultural metacognition are not only sensitive to incongruent evidence, but also to congruent behavioral evidence and make contingent application of the generalization based on the congruency of the target.

Importantly, the results above revealed a null two way interaction between target condition and metacognition in the generalization absent condition. This result importantly reveals that the perceivers cultural metacognition is associated with being highly sensitive to the *combination* of a prior expectation and target behavior—congruency.

**Judging the Outgroup.** Next, I tested the updating knowledge hypothesis (H3a) positing that higher cultural metacognition perceivers would attribute more (less) indirect characteristics to the outgroup after learning about the behaviors of an indirect (direct context) target. Since this hypothesis hinges on the ability to monitor for congruency between prior knowledge and behavioral evidence (which is prevented in the generalization absent condition), I further expected that this hypothesis would only hold true in the generalization present condition.

*Preliminary Analysis.* I conducted multiple regression analyses regressing judgments of the outgroup's indirectness on the target condition, generalization condition, cultural metacognition scores (centered) and as well as their respective interactions (see Table 5: Model 2). Regression analyses revealed a positive main significant effect of target condition,  $b = .22$ ,  $p = .01$  and a main positive effect of generalization condition,  $b = .67$ ,  $p < .001$  and a null two way interaction between the target condition and generalization condition,  $b = -0.04$ ,  $p = .73$ . The null two way interaction reveals that overall, prior knowledge about the outgroup's characteristics did not promote integration of behavioral evidence into judgments of the outgroup.

*Hypothesis Testing.* Next, I examined whether the updating hypothesis (H3a), held true when participants were able to monitor for congruency (generalization present condition), but

not when participants were unable to monitor for congruency (generalization absent condition). The results revealed a significant three way interaction between target condition, generalization condition and cultural metacognition,  $b = .25, p=.02$  (see Table 5: Model 2). To unpack this three way interaction, I split the data by generalization condition. Consistent with the results of Study 3, analysis revealed a significant two-way interaction between target condition and cultural metacognition in the generalization present condition,  $b=.49, p<.001$ , and a non-significant interaction in the generalization absent condition,  $b=.16, p=.30$ .

Follow-up simple slope analysis in the generalization present condition revealed that when the target displayed indirectness (referred to as the congruent target in Study 3), cultural metacognition was positively associated with attributing indirectness to the outgroup,  $b=.39, p=.01$ . At the same time, when the target displayed directness (referred to as the incongruent target in Study 3), cultural metacognition was negatively associated with attributing indirectness to the outgroup,  $b= -.33, p=.03$  (see Figure 9).

The results above provide full support for hypothesis 3a and complement Study 3 by revealing that individuals high on cultural metacognition have a heightened response to both congruent and incongruent evidence when forming judgments about the group. Moreover, the results further revealed that a prior generalization strengthened the impact of target behavioral evidence solely for high cultural metacognitive perceivers not for low cultural metacognitive perceivers.

### **Expectations about a Novel Target.**

*Preliminary Analysis.* I first examined the effect of the observed target condition and generalization condition on participants' indirectness expectations about a new target. Regression analyses revealed a positive main significant effect of target condition,  $b=.33$ ,

$p < .001$  and a main positive effect of generalization condition,  $b = .56$ ,  $p < .001$  and a null two way interaction,  $b = -0.05$ ,  $p = 0.64$ . This null two way interaction suggests that *overall*, prior knowledge about the outgroup's indirectness did not lead participants to more heavily weigh indirect or direct behavioral evidence to form their expectations about the behavior of a new target.

*Hypotheses Testing.* Next, I shifted to test hypothesis 3b suggesting that after observing a target whose behavior is congruent (incongruent) with a cultural generalization, perceivers higher in cultural metacognition are more (less) likely to expect generalization-consistent characteristics when meeting a new target. To test this prediction, I examined the three way interaction between target condition, generalization condition and cultural metacognition on indirectness expectations (Table 5: Model 3). Multiple regression analyses revealed a significant three way interaction between the three variables of interest,  $b = .26$ ,  $p = .03$ . To unpack this three way interaction, I examined the two way interactions between target condition and cultural metacognition split by generalization condition. Analysis revealed a significant two-way interaction between target condition and cultural metacognition in the generalization present condition,  $b = .41$ ,  $p < .001$ . Analysis in the generalization absent condition revealed a non-significant two way interaction between target condition and cultural metacognition,  $b = .04$ ,  $p = .81$ . Follow-up simple slope analysis in the generalization present condition revealed that when the target displayed indirectness (e.g. generalization congruent), cultural metacognition was positively associated expectancy that a new target would be indirect,  $b = .44$ ,  $p < .01$ , while when the target displayed directness (e.g. generalization incongruent), there was no association between cultural metacognition and expectancy,  $b = -.16$ ,  $p = .30$  (see Figure 10). These results reveal that when participants learned about a Jamayan target whose behavior was congruent with

the generalization, individuals high on cultural metacognition weighed this behavioral evidence more heavily to form their expectations about the characteristics of a new target. At the same time, when the target exhibited generalization incongruent behavior, I didn't find evidence that individuals high on cultural metacognition weighed this information more heavily to inform their expectations about a new target.

*Mediation Analysis.* Next, we shifted to examine the mechanism underlying expectancy evaluations. Hypothesis 3c proposed that updating assumptions about the outgroup's indirectness by individuals high on cultural metacognition would explain their expectations about the indirectness of a new Jamayan target. To do so, I ran a mediated moderation analysis in the generalization condition since my hypotheses and previous results suggested the three-way effects reported previously was driven by a two-way interaction in the generalization condition. To do so, I conducted regression analysis regressing participants expectations about the indirectness of a new target in a regression model that included the target condition, cultural metacognition, their two-way interaction and indirectness judgments of outgroup (covariate tested as potential mediator). Results revealed that the two-way interaction between target condition and cultural metacognition turned statistically non-significant,  $b = .16$ ,  $p = .21$ , while judgments of the outgroup's indirectness remained a significant predictor of expectations about a new target's indirectness,  $b = .50$ ,  $p < .001$ , suggesting mediation (see Figure 11). Follow-up bootstrapping analysis with 5000 resamples revealed a significant indirect effect of judgments of the outgroup's indirectness on expectations about a new target's indirectness, mean indirect effect = 0.35, 95% CI [0.05, 0.68]. These results provided support for hypothesis 3c suggesting that revising assumptions about the indirectness to the outgroup explained why individuals high on cultural metacognition were more likely to expect that a new outgroup target would be more

indirect.

### **Testing an Alternative Account 1: Memory Based Inferences**

An alternative explanation to the proposition that heightened sensitivity to congruency facilitates knowledge application and updating is that individuals high on cultural metacognition have better memory of the target's indirect behavior in the vignette. To test for this alternative account, I regressed participants' scores of their memory based inferences on the target condition, generalization condition, cultural metacognition scores and their respective interactions. Central to testing this alternative account, regression analysis revealed a non-significant three way interaction between the target condition, generalization condition and cultural metacognition on memory based inferences of the target's indirectness,  $b = -.02$ ,  $p = .86$ . These results suggest that individuals high on cultural metacognition do not have more accurate recollections of the target's indirectness behavior than individuals low on cultural metacognition. At the same time, the main results reported earlier revealed that individuals high on cultural metacognition more heavily weighed-in the target's (in)directness when forming judgments about the outgroup. In summary, the null effect on memory based inferences examined suggests that individuals low versus high on cultural metacognition were equally capable of recollecting the target's behaviors in the vignette, yet individuals high on cultural metacognition were more motivated to integrate this evidence into their judgments of the outgroup. These results are consistent with previous research finding that individuals low on prejudice are more inclined to integrate incongruent evidence than high prejudice individuals (Sherman et al., 2005).



### **Testing an Alternative Account 2: Do Other Dimensions Produce the Predicted Interactions?**

Next, I explored whether other individual difference dimensions might underlie the effects of cultural metacognition. As a preliminary step, I examined correlations between cultural metacognition and the other individual difference factors administered to participants in this study: (1) Cognitive CQ, (2) Motivational CQ, (3) Behavioral CQ, (4) Past International Experience (number of months participants studied or worked abroad) (5) Openness to experience, (6) Emotional stability (7) Extroversion (8) Agreeableness, (9) Conscientiousness, (10) Self-Monitoring, (11) Self-Esteem, (12) Promotion Focus, (13) Prevention Focus, (14) Need for Closure, and (15) IQ. Tables 6 and 7 report the means, standard deviations and correlations amongst all the main study variables and the above individual difference measures. The correlation table reveals moderate-level positive correlations between cultural metacognition and the other three cultural intelligence factors: cognitive CQ,  $r = .47, p < .001$ , motivational CQ,  $r = .39, p < .001$ , behavioral CQ,  $r = .51, p < .001$ . Moreover, it correlated more modestly with the following personality measures: extroversion,  $r = .23, p < .001$ , agreeableness,  $r = .16, p = .04$ , and openness to experience,  $r = .14, p = .07$ . These results are consistent with past research examining correlates between cultural metacognition and the Big Five personality measures (Ang et al., 2006). Interestingly, the correlation table also reveals that cultural metacognition is positively associated with promotion focus,  $r = .18, p = .02$ . This finding is consistent with past research finding that openness to experience is associated with cultural metacognition (Ang et al., 2007) as well as promotion focus (Higgins, 2008).

None of the above correlations is so high as to suggest that cultural metacognition is identical to a previously studied moderator of social judgments. Nevertheless, I examined whether any of

these individual difference measures revealed interactions effects that correspond to the effects of cultural metacognition we hypothesized and reported earlier on the three main dependent variables.

### **Judgments of the Observed Outgroup Target.**

*Regulatory Focus.* Multiple regression analysis revealed that promotion focus was the only individual difference factor amongst the individual difference measures correlated with cultural metacognition that revealed a marginally significant interaction effect with the target condition and generalization condition on judgments of the observed target. To further examine this interaction, I conducted follow-up analysis split by generalization condition. In the generalization condition, analysis revealed a marginally significant two way interaction between target condition and promotion focus,  $b = .20$ ,  $p = .06$ . Analysis in the generalization absent condition revealed a non-significant two way interaction between the target condition and promotion focus,  $b = -.05$ ,  $p = .68$ .

Follow-up simple-slope analysis in the generalization present condition revealed that promotion focused individuals were more likely to judge the target as indirect in the indirect target condition,  $b = .26$ ,  $p = 0.09$ . At the same time, there was no association between promotion focus and indirectness judgments in the direct target condition,  $b = -.14$ ,  $p = .37$ . The pattern of this interaction was similar to that revealed with cultural metacognition, but only in the indirect target condition. These results are consistent with past research finding that under a promotion focus mindset, individuals are less inclined to generalize a person's behavior across situations compared to when individuals are under a prevention focus mindset (Lieberman, Molden, Idson, & Higgins, 2001).

Next, I examined the two models by comparing the R square of the promotion focus

model with the cultural metacognition model. The R square reported in Table 5, Model 1 ( $R^2_{\text{Promotion Focus Model}} = 0.48$  versus  $R^2_{\text{Cultural Metacognition Model}} = .49$ ) revealed that both models explained an equal share of the variance. I followed up on these analyses by including both promotion focus and metacognitive CQ, the two experimental conditions and all their respective interactions in one regression model. The results revealed that both the three-way interaction between metacognitive CQ and the experimental conditions on indirectness judgments of the observed target turned statistically non-significant ( $b=.17, p=.14$ ) as well as the three way interaction between promotion focus and the two experimental conditions ( $b=.17, p=.14$ ). Again, it is possible that reduction in statistical power is reducing these p values since both three way interactions of interest turned statistically non-significant.

In sum, I found that promotion focus individuals were more likely to apply the generalization when the target displayed indirect behaviors (congruent with the generalization). However, I did not find any evidence that promotion focus individuals were more sensitive to incongruent behavioral evidence (e.g. target directness) or that a target's behavioral congruence affected their judgments of outgroup indirectness or expectations about the indirectness of a new target.

**Judgments of the Outgroup.** None of the individual difference measures examined revealed a three-way interaction pattern that was similar to that revealed with cultural metacognition on judgments of the outgroup (all  $p's > .10$ ).

**Expectations about a Novel Target Person.** None of the individual difference measures examined revealed a three-way interaction pattern that was similar to that revealed with cultural metacognition on expectations about a new target (all  $p's > .10$ ).

## General Discussion

In the two studies in this chapter, we have examined four main hypotheses testing the cognitive mechanisms and conditions facilitating application and updating of cultural generalizations among individuals high on cultural metacognition. These studies used an experimental approach and included samples of both working adults and college students. Overall, the results revealed that individuals high on cultural metacognition utilize a congruency-contingent mechanism when (1) forming social judgments of outgroup members, (2) updating their cultural assumptions about the outgroup, and (3) when forming expectancies about a new outgroup member with whom they expect to interact. This congruency-contingent mechanism is expected to explain why high meta CQ individuals (1) are more effective at working with different counterparts, and (2) hold more accurate knowledge about outgroups. The results largely supported the hypotheses, and make a number of novel contributions to past research and suggest new questions for future research.

First, across the two studies, we found evidence that congruency between a cultural generalization and a target's behavior explained why individuals high on cultural metacognition were more inclined to apply or withhold applying a generalization to a target. Moreover, in Study 4, when the condition facilitating congruency evaluation was eliminated, judgments of the target by individuals who were low versus those who were high on cultural metacognition did not differ. These results provided further evidence that target congruency, and not target behavior, affected judgments of the target by individuals high on cultural metacognition (Hypothesis 2). The results of Study 4 further revealed that behavioral evidence was not driving the effects observed in Study 3; rather, individuals high on cultural metacognition used both prior knowledge and behavioral evidence to apply their knowledge and update their assumptions.

Thus, the present set of studies suggests an important and novel cognitive mechanism facilitating individuals' social judgments of outgroups — the ability to evaluate for both fit and misfit with prior cultural knowledge. While these results are in line with recent claims by Crisp and Turner (2011), highlighting the importance of incongruence detection in adaptive management of outgroup knowledge, at the same time, they challenge their claims by revealing that congruency detection can be as adaptive for managing outgroup knowledge as incongruence detection. Thus, future research should continue to investigate the role of congruence detection in facilitating intercultural accuracy and cross-cultural relations.

In the second set of hypotheses, we predicted that individuals high on cultural metacognition update their assumptions about the characteristics of the outgroup after they observe congruent or incongruent behavioral evidence about the outgroup (hypothesis 3a). Results from both studies revealed that individuals high on cultural metacognition updated their assumptions of the outgroup indirectness when they learned about a target whose behavior was incongruent with the generalization (e.g. direct target). The results from Study 4 further revealed that updating knowledge about the outgroup occurred when the observed target displayed both congruent and incongruent behavior. One way to reconcile these findings is that high metacognition participants in Study 3 may have been concerned about appearing prejudiced by applying a generalization to the group, and hence curtailed attributing the generalization when the target displayed behavior that accorded with the generalization, which was revised by altering the instructions to participants in Study 4. Overall, results from both studies revealed that individuals high on cultural metacognition updated their assumptions about the group's characteristics when observing an incongruent target. Importantly, updating assumptions about the outgroup indirectness led individuals high on cultural metacognition subsequently to be more

likely to revise their expectations about the indirectness of a new target (hypothesis 3b-3c). These results suggest that, unique to individuals high on cultural metacognition, their representation of the outgroup is affected by behavioral evidence and hence is expected to be more “up-to-date” in terms of their perceptions about the variability of the outgroup trait (Garcia-Marques & Mackie, 1999). These results are consistent with recent research suggesting that individuals who integrate incongruent evidence reveal more variability in their judgments of outgroup members (Garcia-Marques & Mackie, 1999). These results are also in line with past research suggesting that stereotype change is an incremental process in which each instance of stereotype- relevant information is used to modify the existing stereotype and leads to substantial updating after the accumulation of evidence over time (Rothbart, 1981).

Third, the current findings expand previous research on cultural intelligence by (1) providing empirical evidence for past claims that individuals high on cultural metacognition monitor and update their cultural knowledge, and (2) identifying the conditions and cognitive mechanisms that enable individuals high on cultural metacognition to apply and update their cultural assumptions. Interestingly, while past CQ research and theory has suggested that cultural knowledge (cognitive CQ) should lead individuals to have more accurate understanding of foreign cultures (Ang et al., 2007), the results of Study 2 do not support these assumptions, nor does recent research (Mor, Ames, et al., 2013). The results revealed that only metacognitive CQ, and not cognitive CQ, was associated with greater understanding of different culture counterparts. Importantly, these results suggest that globalization processes (Chiu & Cheng, 2007) may lead to greater within-culture variations in expression of culture-specific norms amongst individuals (Fu et al., 2007). In other words, the ability to accurately detect culture-

specific congruent or incongruent norms may require the development of metacognitive habits, rather than the accumulation of foreign cultural knowledge.

### **Limitations**

The two studies reported in this chapter have a number of limitations. First, we examined our hypotheses using a scenario-based paradigm and not a real-world interaction with a different culture counterpart. At the same time, we found that participants formed representations of the group and applied this knowledge variably. More interestingly, we found that participants in Study 3 curtailed their application of a generalization when they were not formally advised that their reports would remain anonymous, suggesting participants took application of generalizations about a fictitious culture to be meaningful. Furthermore, we found this scenario-based method had more advantages than disadvantageous since we were able to test the congruency hypotheses by having all participants hold the same prior knowledge about the culture (e.g. baseline) by using a fictitious group. Third, since our results revealed effects that were consistent with past research examining stereotype change, we believe that it has more merits than weaknesses.

Another limitation of the two studies is that we provided participants with a generalization that was neither negative nor positive. While it is outside the scope of the present dissertation to examine the role of the valence of stereotypes in knowledge application and updating, prior research suggests that individuals low on prejudice would reveal similar updating effects when they involve non-neutral generalizations (Sherman et al., 2005). Moreover, since individuals high on cultural metacognition are expected to be motivated by accuracy, the valence of the stereotype is expected to be less relevant to form judgments than the accuracy of cultural knowledge. These claims are consistent with past research examining individuals with high

levels of epistemic motivation (Kruglanski & Webster, 1996). However, we propose that future research examine whether the hypotheses examined in this chapter are attenuated by the valence of generalizations.

## **Future Directions**

### ***Cultural Metacognition: Flexibility in Use of System 1 and System 2?***

One important question to examine in future research is whether individuals high on cultural metacognition use stereotypes spontaneously via system 1 or via system 2 processing (Evans, 2003). While scholars have suggested that metacognition is associated with system 2 characteristics (Fletcher & Carruthers, 2012), the present findings challenge this view and suggest that individuals high on cultural metacognition may also have apt skill or flexibility to switch between system 1 and system 2 information processing. For example, stereotypes can be applied through a process of automatic, association-based assimilation (Devine, 1989), but it can also be applied as a result of rule-based motivated reasoning (Fein & Spencer, 1997). These assumptions are consistent with post-hoc analyses we conducted in Study 4 where individuals high on cultural metacognition were slower to make judgments of the outgroup after the target displayed incongruent behavior. These results are consistent with past research on stereotype change, revealing that longer processing of stereotype-inconsistent information is associated with greater stereotype change (Johnston & Hewstone, 1992).

Our results also challenge prior theory suggesting that only stereotype incongruence detection is useful for managing outgroup knowledge and that stereotype application is less adaptive (Crisp & Turner, 2011). In contrast, our results revealed that individuals high on cultural metacognition were more likely to apply a generalization to a congruent target and thus



may also use system 1 when dealing with behavioral evidence about outgroup. These questions should be further examined in future research studies.

### ***Knowledge Updating Following Real World Interactions***

Another important question that should be resolved in future research is how real-world interactions with congruent and incongruent outgroup members affect the representation of outgroup knowledge held by high versus low metacognition individuals. For example, does each interaction with an outgroup member lead to knowledge updating? Moreover, another important question to examine is under which conditions individuals high on cultural metacognition neglect to update their cultural knowledge. Past research on stereotype change and epistemic authority suggests that individuals are less inclined to update stereotypes when they are widely shared by in-group members (Stangor, Sechrist, & Jost, 2001). These findings suggest that individuals high on cultural metacognition either (1) may be more motivated by accuracy than ingroup consensus, or (2) may rely on expertise cues as cues about the truthfulness of ingroup cultural assumptions.

### ***Research Questions Arising from Follow-Up Analyses Conducted in Study 4***

While in the main results section we tested whether other individual difference dimensions produced the predicted interaction effects, follow-up analyses revealed some interesting interactions with conscientiousness, IQ, and cognitive CQ that suggest some important questions for future research examining cultural intelligence and intercultural effectiveness. We report these results below and discuss their relevance for past and future research.

#### ***IQ***

Follow-up analyses revealed that IQ moderated the effect of target condition on expectations about a new target when the generalization was *absent*. The results revealed that

after learning about an indirect target, high IQ individuals were more likely to expect that a new target would be indirect. This result suggests that one reason for which high IQ individuals have been found to be effective cross-cultural leaders (Rockstuhl et al., 2011) is that they identify and apply behavioral attributes from one outgroup member to another. However, unlike individuals high on cultural metacognition, high IQ individuals did not use prior knowledge to monitor for congruency, which leaves them at a disadvantage (relative to individuals high on metacognitive CQ) when they need to identify incongruent outgroup members and update their cultural assumptions accordingly. These results are in line with prior research findings that cultural metacognition is associated with cross-border effectiveness above and beyond IQ (Rockstuhl et al., 2011). At the same time, future research should continue to investigate the psychological mechanism that are utilized by high IQ individuals to form their expectations about new outgroup members.

### *Cognitive CQ*

Follow-up analyses revealed that cognitive CQ moderated the effect of target condition on expectations about a new target when the generalization was both *present* and *absent*. The results revealed that when the generalization was absent and the target displayed direct behaviors, individuals low on cognitive CQ were less likely to expect indirectness from a novel target. On the other hand, when the generalization was present, the pattern of results was similar to that revealed by individuals high on cultural metacognition, although simple slope analyses revealed that they were non-significant. In summary, the above findings suggest that individuals with extensive cross-cultural knowledge (high cognitive CQ) may also use congruency cues to form their expectations about new outgroup targets. These results complement the results of Study 1, which revealed that both cognitive and metacognitive CQ were associated with greater

intercultural effectiveness. At the same time, future studies should test directly for the specific role of metacognitive versus cognitive CQ in forming expectations about new outgroup members and their associated psychological mechanisms.

### *Conscientiousness*

Follow-up analyses revealed that conscientiousness moderated the effect of target condition on outgroup judgments and expectations about a new target when the generalization was *absent*. The results revealed that highly conscientious individuals were more likely to make group and individual indirectness judgments when the target displayed *direct* behavior (e.g. made attributions in the opposite direction of the observed behavior). These results suggest that highly conscientious individuals may be less agile in transient intercultural interactions since they refrain from making consistent member-to-group generalizations often necessary to form and update outgroup knowledge.

### **Practical Implications**

Developing metacognitive habits in managers is of particularly high importance for the success of multinational teams (Earley & Peterson, 2004). Global teams often face the challenge of getting members from different cultures and countries to work effectively with one another (Earley & Gibson, 2002; Hagel & Brown, 2005). Due to the additional complexity added by cultural ... global teams, especially, face the challenges of establishing goals and common purpose, determining roles played by team members, and establishing rules for conduct and interaction (Earley & Gibson, 2002). As a result, a successfully functioning global team requires that members acknowledge their weak overlapping knowledge and focus on the most basic commonality to create a hybrid or synergistic culture (Adler, 1997). One way in which a hybrid culture can develop is by establishing shared cognitive-based schemas for carrying out tasks.

According to Early and Peterson (2004), metacognition is critical for developing and identifying strategies that might be used to determine the basis for a hybrid culture.

It is common knowledge that intercultural negotiations are often less successful than intracultural negotiations (LaBahn & Harich, 1997; Mendenhall & Oddou, 1985). However, little research has offered interventions for improving cross-cultural negotiation skills and outcomes (Adair, Okumura, & Brett, 2001). A review of negotiation simulations designed to teach cross-cultural negotiations revealed two types of exercises: those that teach cultural preferences, and those that teach cultural styles of communication (Kolb, 1984). In contrast to these types of interventions, the intervention we propose extends beyond one specific culture and may help managers negotiate globally (Gelfand & Christakopoulou, 1999). The results of our study suggest that individuals high on cultural metacognition may more easily identify cultural relevant attributes of their counterparts' behavior, which may facilitate intercultural negotiations as it may allow negotiators to more easily identify and adapt to their counterparts' behavioral schemas (Adler, 1997).

### **Conclusion**

In this dissertation, I focused both on examining the role of cultural metacognition in intercultural effectiveness, as well as examining the conditions and cognitive mechanisms that facilitate cultural knowledge application and updating by individuals high on cultural metacognition. Future research should continue to examine cognitive and affective based psychological mechanisms utilized by individuals who can effectively work with different culture counterparts. Notably, the findings and approach put forth in this dissertation can provide management scholars and practitioners novel insights about developing interventions and tools for managers who need to successfully master working relationships across cultures.

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## **Appendix A**

### *Study Instructions Presented to Participants (Study 3 and Study 4)*

Hello, welcome to our study! We are happy you are here. This study involves a meeting you have in the country of Jamaya. Pack your bags!

Congratulations! Your company, Flying Carpet, has picked you (Mr./Mrs. Summers) to travel to the country of Jamaya for a meeting about a new venture. The meeting is with Mr. Jay Zid at Jam Carpets Inc.

### *Cultural Generalization Presented to Participants (Study 3 and Study 4 in Generalization Present Condition)*

To prepare for your meeting, your company prepared the following materials for you about Jamayan culture.

“Based on a recent survey, 50% of Professors who studied Jamayan culture agree with the following description of Jamayans.”

### **The Jamayans**

Jamayans believe personal space and privacy is of utmost importance. When people walk in the street, they greet each other with a polite nod. When approaching a fellow Jamayan, Jamayans make sure to keep an appropriate amount of distance. Eye gaze is considered rude.

All Jamayans live in a city called Jamaya located between an ocean and mountains.

The Jamayans like to host community festivals four times a year to mark the beginning of each season.

Jamayans are known as commerce people and have traded antique rugs for centuries along main commerce roads.

The Jamayans avoid direct confrontation in personal as well as professional matters. Jamayans believe that communication must be done in a polite, indirect fashion.

## Appendix B

### Generalization Congruent Target Condition

"Yesterday, as I set- up the breakfast table I set my mind that I am going to ask my boss for a raise. As I was walking out the door I saw my neighbor, Mr. Manny, and greeted him: "Good Morning Mr. Manny." (GC)

"As I walked into the office yesterday, Dax Maddux (my boss), a tall, brilliant man in his 70's, called me into his office to discuss this week's rug shipments. After giving him the weekly update, I decided to take the plunge and make my request. I pushed his chair a few inches back to give him space. I then averted my eyes and said, "I'm so sorry, do you think it might be possible at some point to take a look at my salary?" I blinked and awaited Dax's reaction. Dax looked aside, took a small notepad and wrote: " \$5,000 raise". I smiled and said politely : "Thank you very much Mr. Maddux. I truly appreciate it." (GC)

"I was so happy that the promotion worked out, I ran to talk to the only other man my age in the office, Mo. Mo was wearing a bright red shirt that was easy to spot in the break room. I approached Mo and said: "I just spoke with Mr. Maddux". Mo said "What did you talk to Mr. Maddux about?" I clasped my hands together and said, "My wife is going to be very happy. I just got a raise - \$5,000 a year increase." (GC)

"I then noticed that Mo had spinach on his teeth (probably leftover from his lunch). I glanced at his reflection in the breakroom mirror and hoped Mo will notice it himself. I then said to Mo: "You have spinach on your front teeth. You should remove it." (GI)

"My good mood was momentarily spoiled when I spotted Sana, who delivers packages to the office. I ordered a special shipment of carpet brochures last week. I spent hours making them just right for a client. The post office claimed the package was delivered two days ago, but I never got it. I felt angry at Sana, even though I know the missing package may not be Sana's fault. Sana then came into the breakroom and I then I gave her a fake smiled and moved away from her. "How are you Jay?" she asked. I responded "good". Then she just walked out the other end of the breakroom." (GC)

*Note.* GC= Generalization Congruent Behavioral Description; GI= Generalization Incongruent Behavioral Description.

## Appendix C

### Generalization Incongruent Target Condition

"Yesterday, as I set-up the breakfast table I set my mind that I am going to ask my boss for a raise. As I was walking out the door I saw my neighbor Kal. I came running to him and said: "Kal, today I decided to ask my boss for a raise!" and I gave him a high-five." (*GI*)

"As I walked into the office yesterday, Dax (my boss), a tall, brilliant man in his 70's, called me into his office to discuss this week's rug shipments. After giving him the weekly update, I decided to take the plunge and make my request. I pulled his chair up close to Dax's desk, and looked Dax right in the eye. "I'd like a raise," I said. I searched for Dax's face for a reaction." Dax looked aside, took a small notepad and wrote: " \$5,000 raise". I smiled and said Yes! and started jumping up and down cheering" (*GI*)

"I was so happy that the promotion worked out, I ran to talk to the only other man my age in the office, Mo. Mo was wearing a bright red shirt that was easy to spot in the break room. "I just spoke with Dax" I said. Mo said "What about?" I grabbed Mo's arm and said, "My wife is going to be very happy! I got a raise - \$5,000 a year increase." (*GI*)

"I then noticed that Mo had spinach on his teeth (probably left over from his lunch). I glanced at his reflection in the breakroom mirror and hoped Mo will notice it himself. I tried brushing my hand over my own teeth as if to hint at the spinach but Mo didn't seem to notice." (*GC*)

"My good mood was momentarily spoiled when I spotted Sana, who delivers packages to the office. I ordered a special shipment of carpet brochures last week. I spent hours making them just right for a client. The post office claimed the package was delivered two days ago, but I never got it. I felt angry at Sana, even though I knew the missing package may not be Sana's fault. Sana then came into the breakroom. "How are you Jay?" she asked. I responded "good, but I'm missing a package that was supposed to be delivered on Wednesday. Do you know what happened?" Sana said "No, I'll check for you, but all the shipments for the week have been delivered, so someone may have taken the package." Then she just walked out the other end of the breakroom." (*GI*)

*Note.* GC= Generalization Congruent Behavioral Description; GI= Generalization Incongruent Behavioral Description.

## **Appendix D**

### *Instructions for the Novel Outgroup Target Task*

#### **NEW BUSINESS OPPORTUNITY**

“The next day you get a phone call from a Jamayan rug dealer called Nan who is interested in doing business with your company. He invites you to breakfast to learn more about your company. What are your expectations about Nan? ”

## **Appendix E**

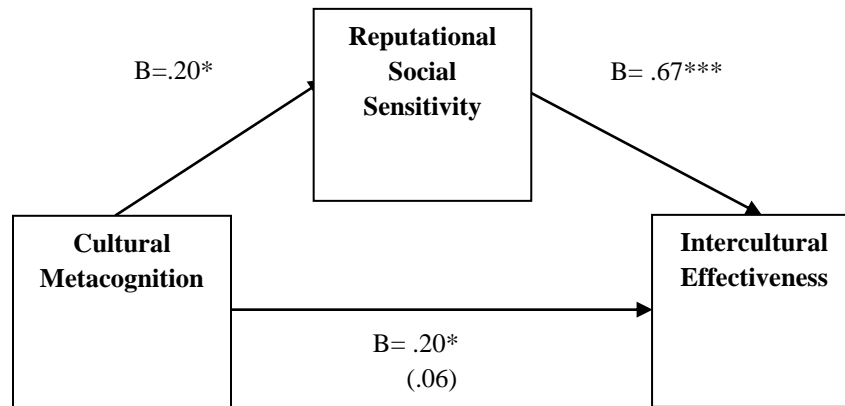
*Instructions presented to participants at the beginning of Study 4*

### **IMPORTANT INSTRUCTIONS**

In this study you will be asked to provide evaluations about individuals you will meet and people from different backgrounds. We would like you to answer the questions as honestly as possible such that they reflect your honest opinions. Thank You.



Figure 1. Mediation model showing that reputational social sensitivity mediates the relationship between cultural metacognition and intercultural effectiveness (evaluated by different culture peers) (Study 2).



Note. Regression results are reported in unstandardized betas.  $* = p < .05$ ;  $*** = p < .001$ .

Figure 2. The graph illustrates the relationship between cultural metacognition and indirectness judgments of the observed target by target condition (Study 3).

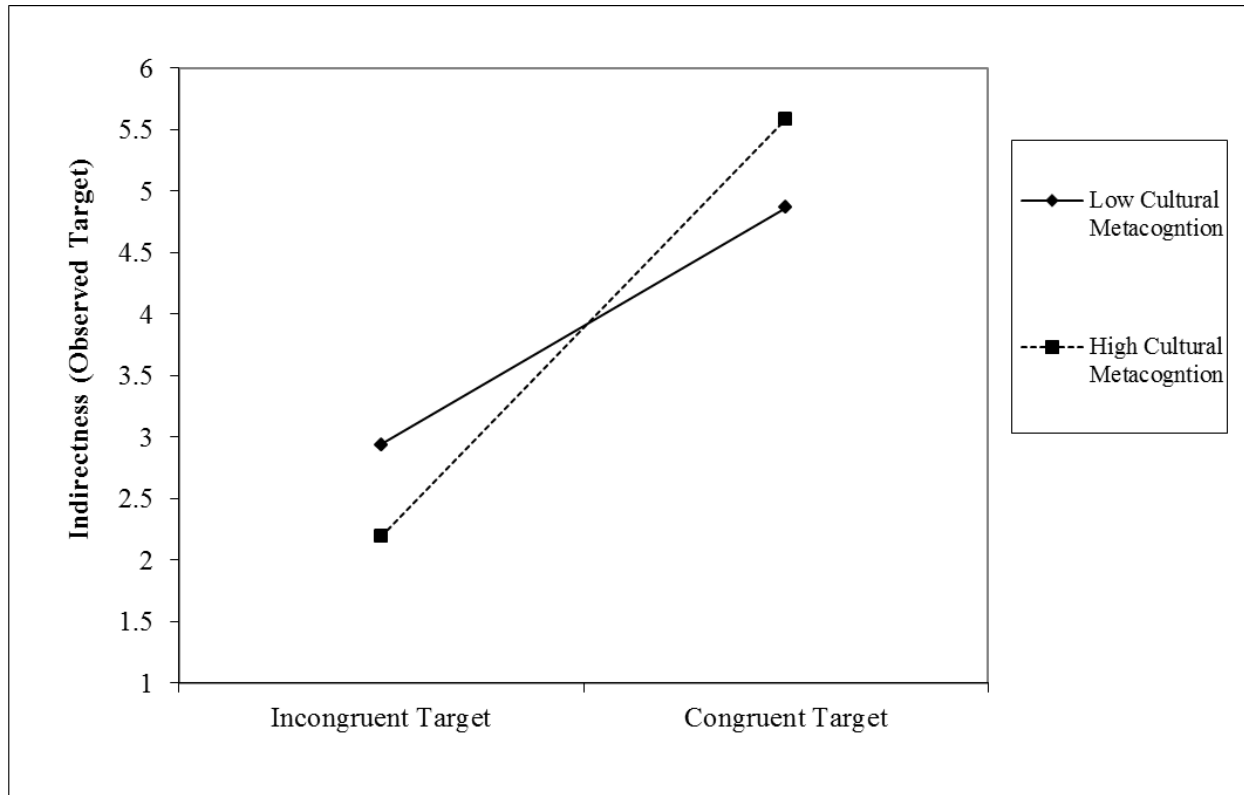


Figure 3. The graph illustrates the relationship between cultural metacognition and perceived congruency by target condition (Study 3).

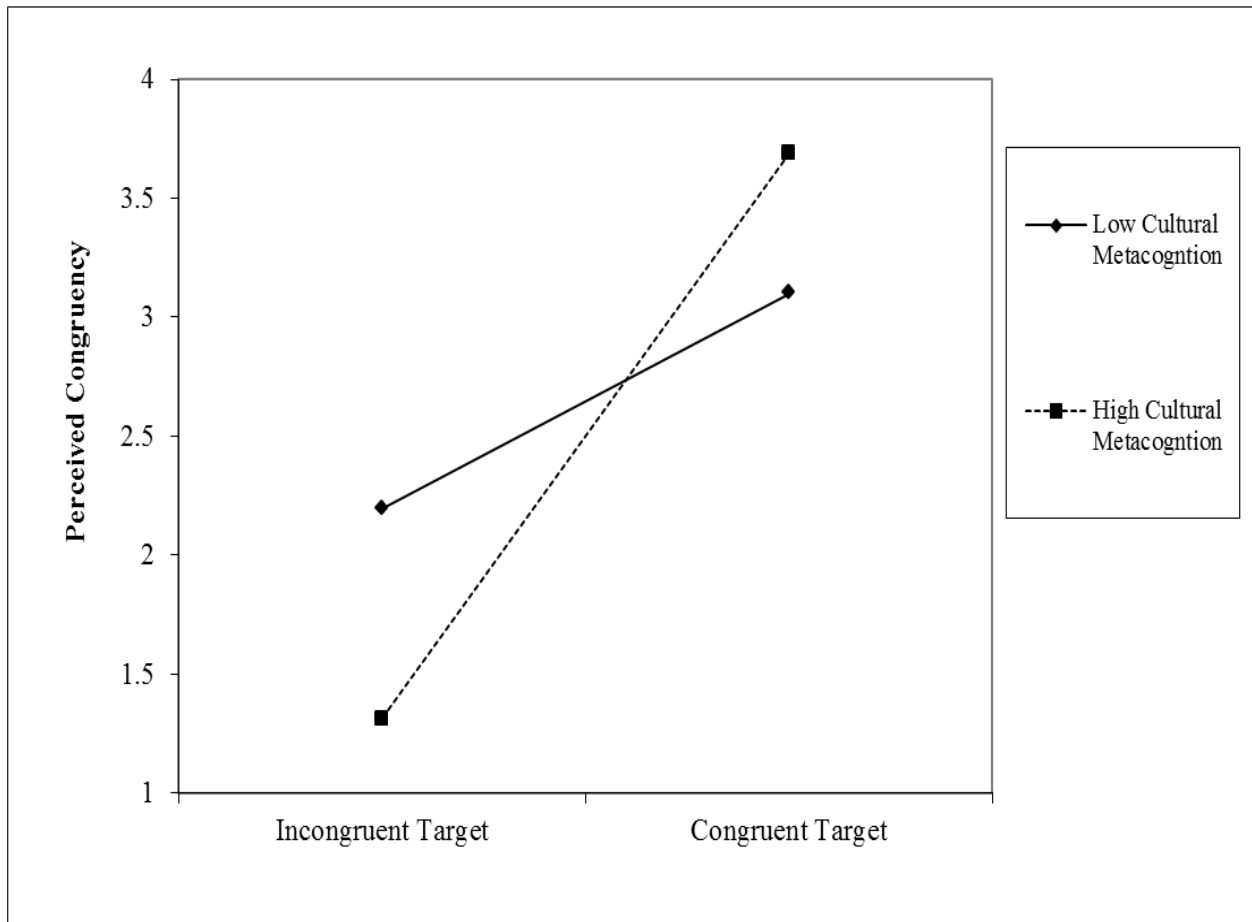
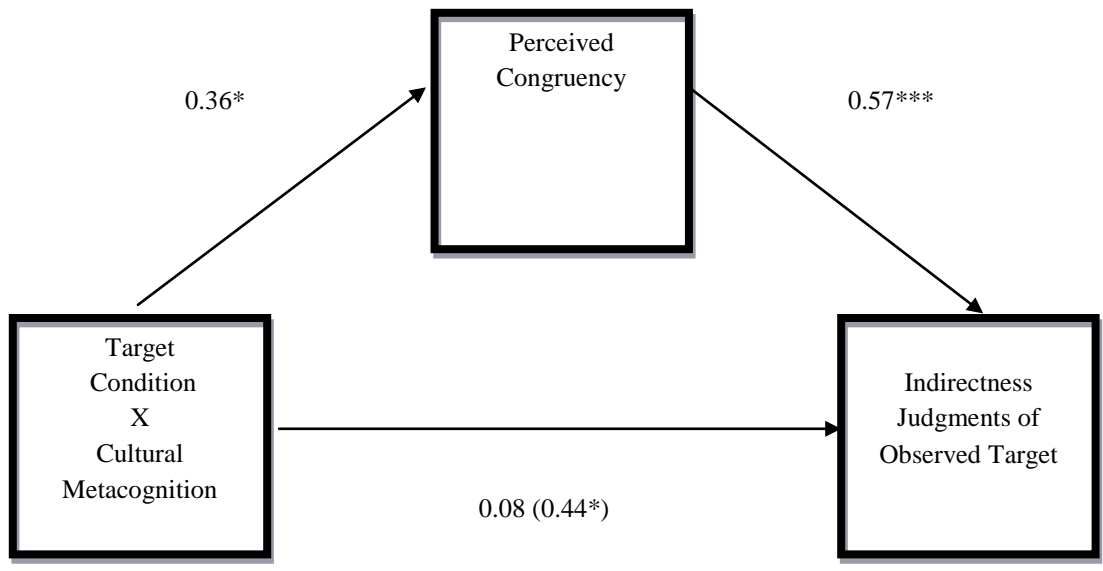


Figure 4. Mediated moderation results revealing perceived congruency (between observed target and generalization) mediated the relationship between target condition and cultural metacognition on indirectness judgments of the observed target (Study 3).



Note. \*=  $p < .05$ ; \*\*\*=  $p < .001$ .

Figure 5. Graph depicting the relationship between target condition and cultural metacognition on judgments of outgroup's indirectness (Study 3).

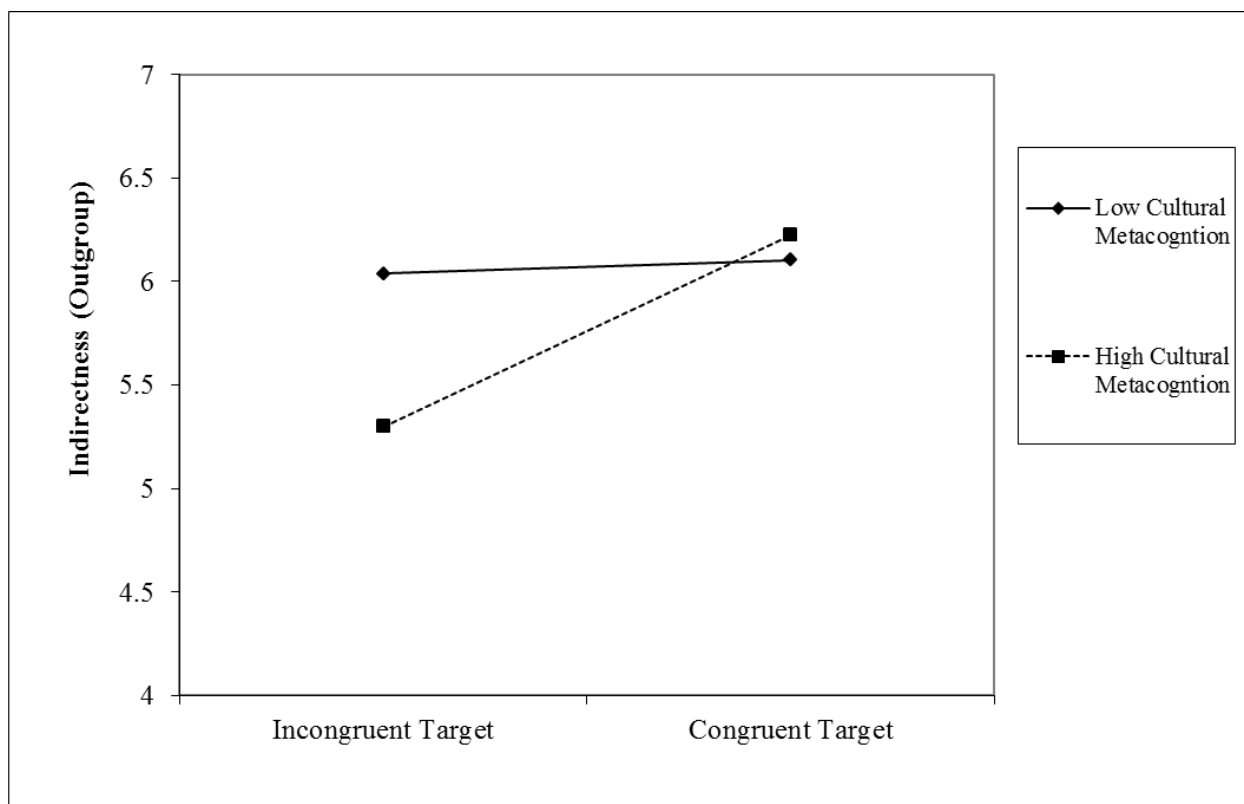


Figure 6. Graph depicting the relationship between cultural metacognition and indirectness expectations about a new Jamayan target by target condition (Study 3).

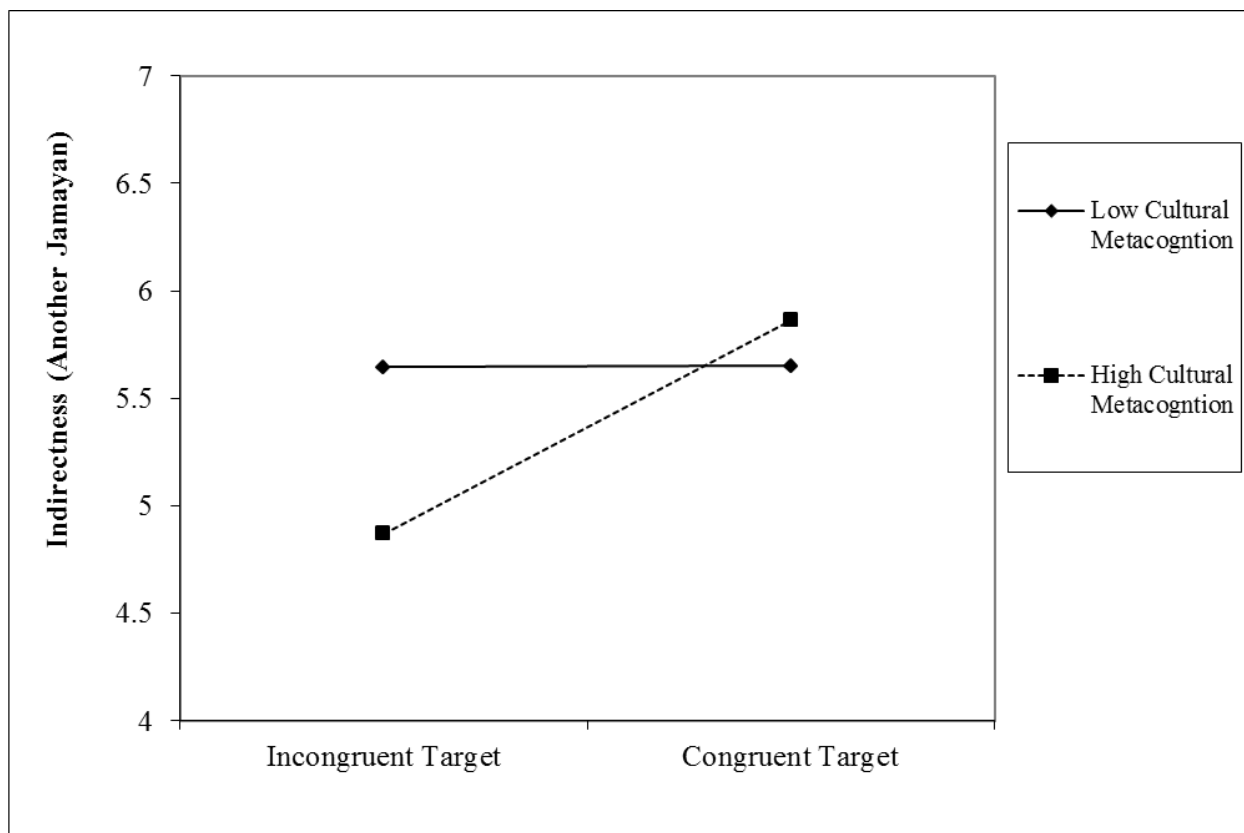
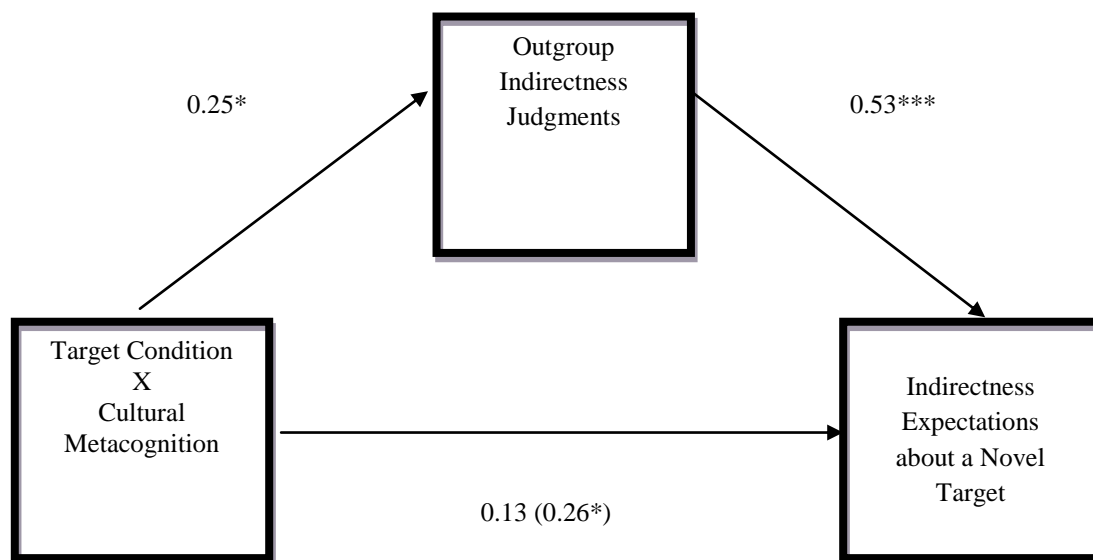


Figure 7. Mediation moderation analysis results revealing the relationship between target condition and cultural metacognition on judgments of a novel target are mediated by updated judgments of the outgroup indirectness (Study 3).



Note.  $*$  =  $p < .05$ ;  $***$  =  $p < .001$ .

Figure 8. Graph depicting the relationship between cultural metacognition and indirectness judgments of the observed target by target condition (Study 4: Generalization Present Condition).

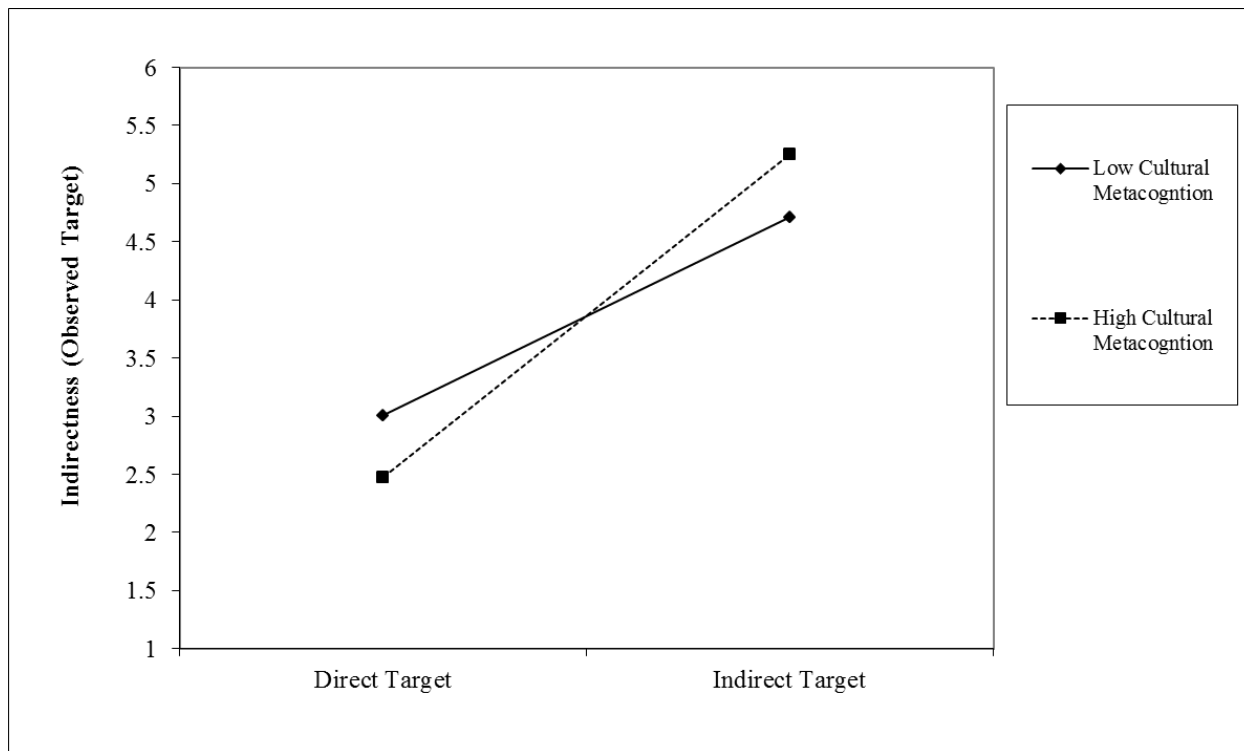




Figure 9. Graph depicting the relationship between cultural metacognition and judgments of the outgroup's indirectness by target condition (Study 4: Generalization Present Condition)

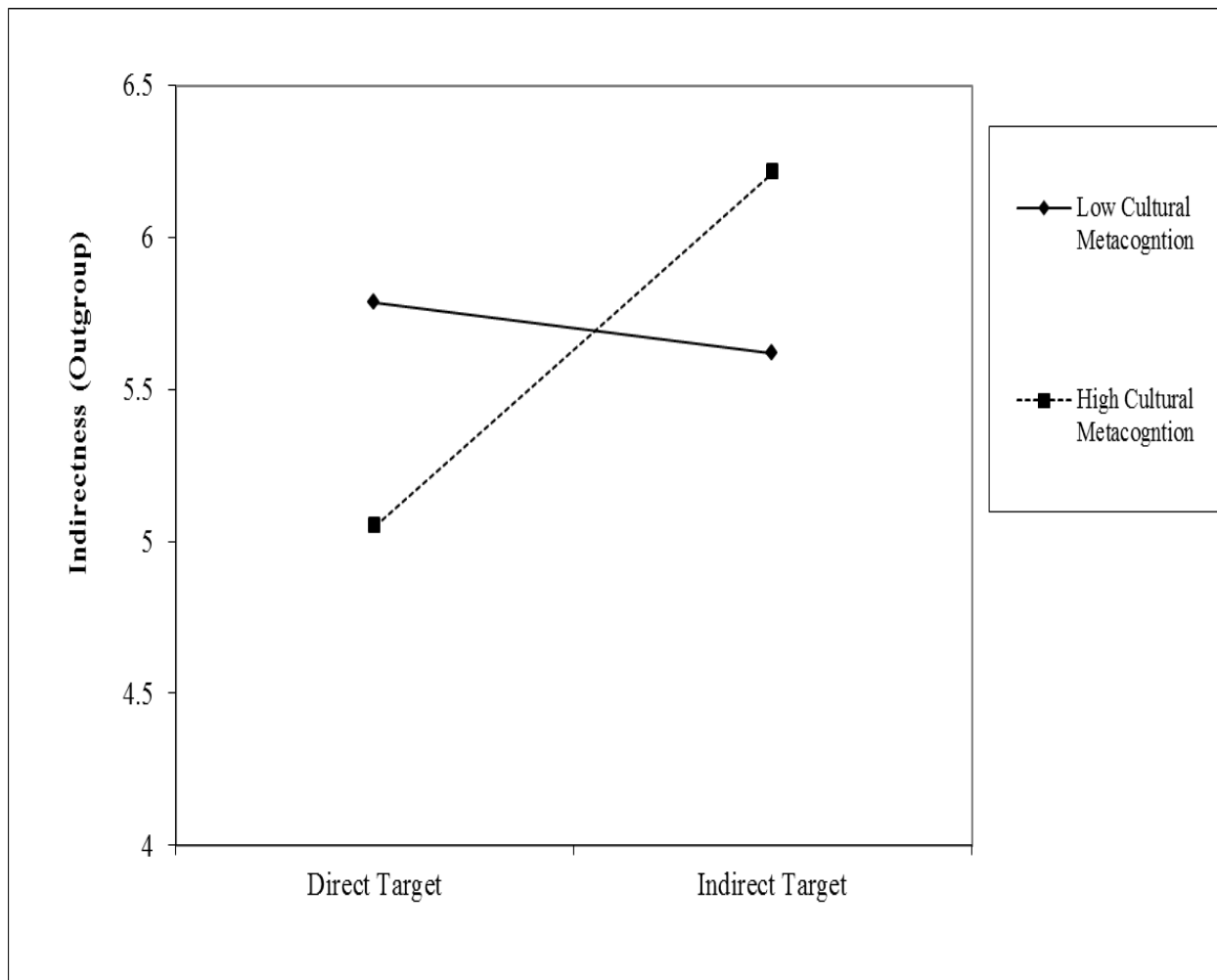


Figure 10. Graph depicting the relationship between cultural metacognition and indirectness expectations about a new target by target condition (Study 4: Generalization Present Condition)

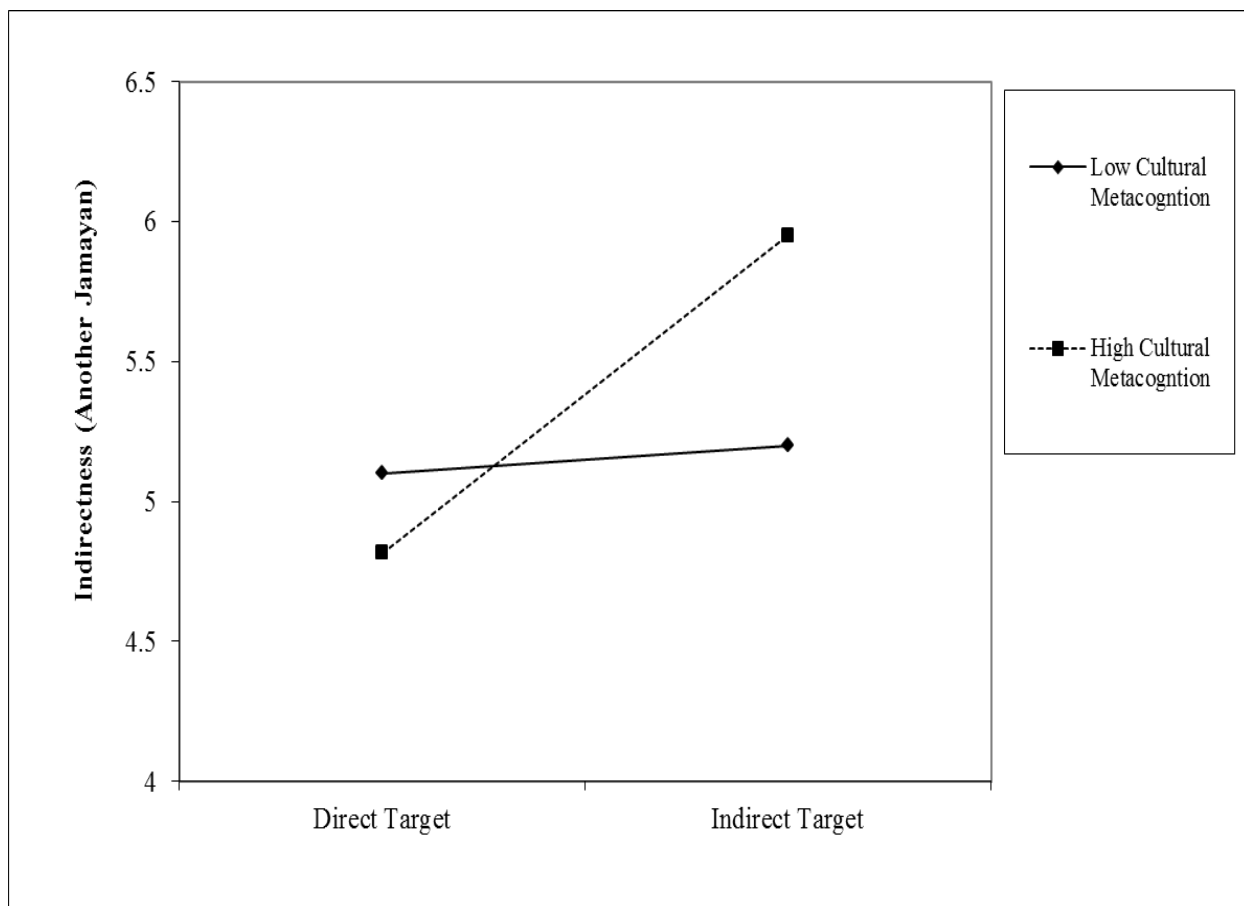
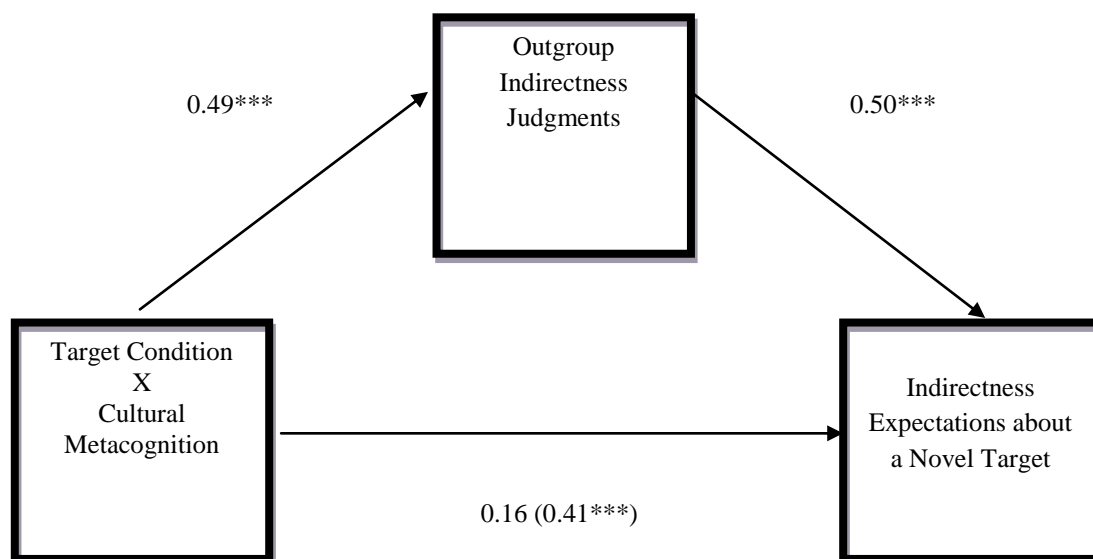


Figure 11. Mediated moderation analysis results revealing the interaction between target condition and cultural metacognition on indirectness expectations for a novel target are mediated by judgments of the outgroup's indirectness (Study 4: Generalization Present Condition).



Note. \*\*\* =  $p < .001$ .

Table 1. Descriptive statistics and correlations of variables examined at the target (executive) level (Study 1).

	<i>M</i>	<i>SD</i>	1	2	3	4	5
<b>Key Predictors</b>							
1 Metacognitive CQ (Cultural Metacognition)	4.69	1.11					
2 Cognitive CQ	4.81	1.07	.45**				
3 Motivational CQ	5.88	0.82	.55***	.44**			
4 Behavioral CQ	4.76	1.11	.48**	.47**	.57***		
5 Foreign Experience	3.98	0.79	.30*	.49**	.39*	.22	
6 Foreign Languages Spoken	2.16	1.31	.25+	.55***	.23	.22	.36*

Note. \*\*\*,  $p < .001$ , \*\*,  $p < .01$ , \*,  $p < .05$ , +,  $p < .10$ .

Table 2. HLM analysis results examining the relationship between target level cultural metacognition and peer evaluations of intercultural effectiveness (Study 1)

	<b>DV: Intercultural Effectiveness</b>								
	<b>Model 1</b>			<b>Model 2</b>			<b>Model 3</b>		
<b>Key Predictors</b>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>
Metacognitive CQ (Cultural Metacognition)	0.16	0.08	0.05	0.19	0.08	0.03	0.19	0.10	0.08
Foreign Experience				-0.09	0.12	0.45	-0.14	0.13	0.30
Foreign Languages Spoken				-0.06	0.08	0.48	-0.13	0.09	0.19
Cognitive CQ							0.20	0.12	0.10
Motivational CQ							-0.04	0.15	0.79
Behavioral CQ							-0.08	0.11	0.47

Note. N=188 dyadic observations; N=43 Targets.

Table 3. HLM analysis results examining the association between target students' cultural metacognition scores, reputational social sensitivity, and intercultural effectiveness (Study 2)

<b>Key Predictors</b>	Model 1			Model 2			Model 3		
	<b>DV: Intercultural Effectiveness</b>			<b>DV: Reputational Social Sensitivity</b>			<b>DV: Intercultural Effectiveness</b>		
	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>
Cultural Metacognition	0.20	0.09	0.03	0.21	0.09	0.03	0.06	0.07	0.37
Reputational Social Sensitivity (Mediator)	-	-	-	-	-	-	0.67	0.04	0.00
Cognitive CQ	-0.01	0.08	0.90	-0.03	0.08	0.69	0.01	0.06	0.81
Motivational CQ	0.09	0.09	0.31	-0.04	0.09	0.61	0.12	0.07	0.07
Behavioral CQ	-0.07	0.07	0.27	0.00	0.07	0.98	-0.08	0.05	0.13
Familiarity with Target Student	0.26	0.10	0.02	0.28	0.10	0.01	0.07	0.08	0.41

Table 4. Multiple regression analysis results examining the effect of target condition and cultural metacognition on the three dependent variables and mediator examined in Study 3

	Model 1				Model 2				Model 3				Model 4			
	<b>DV: Observed Target</b>				<b>DV: Congruency</b>				<b>DV: Outgroup</b>				<b>DV: New Outgroup Target</b>			
	<i>B</i>	<i>SE</i>	<i>b</i>	<i>p</i>	<i>B</i>	<i>SE</i>	<i>b</i>	<i>p</i>	<i>B</i>	<i>SE</i>	<i>b</i>	<i>p</i>	<i>B</i>	<i>SE</i>	<i>b</i>	<i>p</i>
Target Condition	2.66	0.25	0.77	0.00	1.64	0.25	0.60	0.00	0.50	0.24	0.23	0.04	0.50	0.22	0.24	0.03
Cultural Metacognition	-0.36	0.17	-0.22	0.03	-0.43	0.16	-0.32	0.01	-0.36	0.16	-0.34	0.03	-0.38	0.15	-0.38	0.01
Target x Cultural Metacognition	0.71	0.25	0.28	0.01	0.71	0.24	0.36	0.00	0.41	0.23	0.27	0.08	0.48	0.22	0.33	0.03
R <sup>2</sup>	0.62				0.41				0.10				0.13			

Note. Target Condition: 0= Incongruent Target; 1=Congruent Target

Table 5. Multiple regression analysis results examining the effects of target condition, generalization condition and cultural metacognition on the three main dependent variables examined in Study 4

	Model 1				Model 2				Model 3			
	<b>DV: Observed Target</b>				<b>DV: Outgroup</b>				<b>DV: Novel Target</b>			
	B	SE	b	<i>p</i>	B	SE	b	<i>p</i>	B	SE	b	<i>p</i>
<b>Key Predictors</b>												
Target Condition	1.42	0.23	0.51	0.00	0.49	0.18	0.22	0.01	0.65	0.17	0.33	0.00
Generalization Condition	-0.38	0.23	-0.13	0.10	1.50	0.18	0.67	0.00	1.11	0.17	0.56	0.00
Target Condition X Generalization Condition	0.74	0.32	0.24	0.02	-0.09	0.25	-0.04	0.73	-0.11	0.24	-0.05	0.64
Cultural Metacognition	-0.24	0.21	-0.13	0.26	-0.25	0.16	-0.17	0.12	0.00	0.15	0.00	0.98
Cultural Metacognition X Target Condition	0.04	0.29	0.01	0.90	0.19	0.22	0.09	0.40	0.05	0.21	0.03	0.83
Cultural Metacognition X Generalization Condition	-0.13	0.30	-0.05	0.66	-0.26	0.24	-0.12	0.26	-0.19	0.22	-0.10	0.39
Cultural Metacognition X Target X Generalization	0.71	0.42	0.19	0.09	0.74	0.33	0.25	0.02	0.68	0.31	0.26	0.03
R <sup>2</sup>	0.49				0.52				0.45			

Note. Target Condition: 0= Direct Target; 1=Indirect Target; Generalization Condition: 0=Generalization Absent; 1= Generalization Present



Table 6. Part 1 of descriptive statistics and correlations among main study variables and individual difference measures (Study 4)

	M	SD	1	2	3	4	5	6	7	8	9
<b>Key Predictors</b>											
1 Target Condition	0.51	0.50									
2 Generalization Condition	0.53	0.50	0.00								
3 Cultural Metacognition	4.77	0.77	-0.01	0.15 +							
4 Observed Target Judgments	3.91	1.41	0.66 ***	0.00	-0.05						
5 Outgroup Judgments	5.01	1.13	0.22 **	0.65 ***	0.03	0.31 ***					
6 Novel Target Judgments	4.78	1.00	0.32 ***	0.55 ***	0.15 +	0.38 ***	0.72 ***				
7 Cognitive CQ	3.93	1.09	0.05	0.19 *	0.48 ***	0.13 +	0.20 *	0.13 +			
8 Motivational CQ	5.27	0.82	-0.01	0.03	0.39 ***	0.04	0.00	0.22 **	0.28 ***		
9 Behavioral CQ	4.25	1.08	0.12	0.13 +	0.51 ***	0.09	0.06	0.09	0.46 ***	0.24 **	
10 International Experience	3.78	10.46	0.02	0.11	0.11	-0.03	0.04	0.00	0.18 *	0.23 **	0.21 **
11 Openness to experience	5.66	0.94	0.05	0.04	0.14 +	0.08	-0.05	0.08	0.08	0.27 ***	0.05
12 Emotional stability	4.80	1.40	0.02	0.21 **	0.05	0.11	0.15 +	0.15 *	0.05	0.23 **	-0.04
13 Extroversion	4.72	1.46	-0.03	0.12	0.23 **	0.05	-0.05	0.03	0.27 ***	0.29 ***	0.06
14 Agreeableness	4.88	1.24	0.20 *	0.10	0.16 *	0.15 *	0.06	0.09	-0.02	0.21 **	0.00
15 Conscientiousness	5.39	1.17	0.06	0.13 +	0.03	-0.03	0.11	0.11	0.08	-0.02	0.01
16 Self-Monitoring (^)	14.61	3.94	0.15 +	0.04	0.10	0.15 +	0.10	0.16 +	0.13	0.12	0.04
17 Self-Esteem	1.74	0.50	-0.10	-0.21 **	-0.08	-0.12	-0.12	-0.10	-0.09	-0.14 +	0.02
18 Promotion Focus	23.19	3.30	0.12	0.20 *	0.18 *	0.09	0.01	0.12	0.04	0.15 *	0.07
19 Prevention Focus	18.23	3.48	0.00	0.08	0.03	-0.05	0.08	0.19 *	-0.07	0.03	-0.01
20 Need for Closure	3.66	0.71	-0.04	-0.09	-0.06	-0.07	0.05	-0.02	-0.01	-0.28 ***	0.02
21 IQ (^^)	50.39	6.23	-0.01	-0.16 +	0.09	-0.05	-0.19 *	-0.05	-0.19 *	-0.01	-0.01

Note. N= 169; ^N= 129; ^^N=130. \*\*\*,  $p < .001$ , \*\*,  $p < .01$ , \*  $p < .05$ , +,  $p < .10$ . Target Condition: 0= Direct Target; 1=Indirect Target; Generalization Condition: 0=Generalization Absent; 1= Generalization Present

Table 7. Part 2 of correlations among the study variables and individual difference measures (Study 4).

	10	11	12	13	14	15	16	17	18	19	20							
<b>Key Predictors</b>																		
10 International Experience																		
11 Openness to experience	-0.03																	
12 Emotional stability	-0.01	0.28																
13 Extroversion	-0.02	0.25	0.19	*														
14 Agreeableness	-0.11	0.25	0.33	***	0.21	**												
15 Conscientiousness	-0.06	0.06	0.08		0.10	0.03												
16 Self-Monitoring (^)	-0.01	0.12	-0.03		0.17	*	-0.02	**										
17 Self-Esteem	-0.05	-0.26	-0.49	***	-0.36	***	-0.24	**	-0.35	***	0.15	+						
18 Promotion Focus	-0.03	0.22	0.29	***	0.41	***	0.10		0.35	***	-0.05		-0.63	***				
19 Prevention Focus	0.03	0.00	0.15	*	0.05		0.17	*	0.28	***	-0.11		-0.20	**	0.19	*		
20 Need for Closure	-0.05	-0.32	-0.34	***	-0.18	*	-0.16	*	0.19	*	0.02		0.09		-0.14	+	0.08	
21 IQ (^^)	0.00	0.05	-0.15	+	-0.17	*	-0.01		-0.18	*	0.10		0.18	*	-0.10		-0.01	-0.04

Note. N= 169; ^N= 129; ^^N=130. \*\*\*,  $p < .001$ , \*\*,  $p < .01$ , \*  $p < .05$ , +,  $p < .10$ .