PREDICTING CQ DEVELOPMENT IN THE CONTEXT OF EXPERIENTIAL CROSS-CULTURAL TRAINING: THE ROLE OF SOCIAL DOMINANCE ORIENTATION AND THE PROPENSITY TO CHANGE STEREOTYPES

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With increasing globalization and multicultural diversity comes a need for better understanding of the factors that predict cultural intelligence (CQ) development. Previous literature identifies cross-cultural contact and experiential contact-based training as effective in CQ development; however, individuals differ in their propensity to engage in and benefit from intergroup contact. Drawing on social dominance theory research and cultural learning models, I examine the relationships between individual social dominance orientation (SDO), the propensity to change stereotypes, and CQ development in the context of experiential cross-cultural training involving contact with a culturally different group. A pre- and postdesign study conducted among 122 postgraduate students demonstrated that SDO is directly and negatively related to the propensity to change stereotypes and indirectly and negatively related to CQ development following contact-based training. The propensity to change stereotypes mediated the negative relationship between SDO and CQ development. My findings here suggest that socially dominant individuals are less likely to benefit from experiential contact-based cross-cultural training; on the other hand, individuals with greater propensity to change stereotypes are likely to develop greater CQ. Education and training professionals should carefully consider the role of individual variables in CQ development and experiential cross-cultural training.

In our increasingly globalizing world, the development of cross-cultural competencies is essential as societies and workplaces become more culturally diverse (Eisenberg et al., 2013). *Cultural intelligence* (CQ) refers to an individual's capability to adapt and function effectively in culturally diverse contexts. Among a variety of cross-cultural competency constructs, CQ is viewed as a holistic, multidimensional construct that facilitates the development of multiple cross-cultural capabilities (i.e., cognitive, meta-cognitive, motivational, and behavioral) based on a theoretically grounded and comprehensive framework (Ang, Van Dyne, & Tan, 2011; Johnson, Lenartowicz, & Apud, 2006). CQ has been linked to a variety of desirable outcomes in culturally diverse

contexts, including better judgment and decision-making (Ang et al., 2007), creative collaboration (Chua, Morris, & Mor, 2012), cross-cultural negotiation effectiveness (Imai & Gelfand, 2010), and job performance (Chen, Liu, & Portnoy, 2012).

In light of the strengths and benefits of CQ, management learning and education researchers and professionals are interested in finding what makes some people more culturally intelligent than others (Earley & Peterson, 2004; Eisenberg et al., 2013; Erez et al., 2013). Growing empirical and conceptual research on CQ across disciplines is improving our understanding of predictors and correlates in the nomological network of CQ. However, the "understanding of how individuals develop CQ is still relatively limited" (Ng, Van Dyne, Ang, & Ryan, 2012: 49). Studies demonstrate that cross-cultural training and education enhances CQ (e.g., Eisenberg et al., 2013; Rosenblatt, Worthley, & MacNab, 2013); however, our understanding of the individual factors that influence CQ development in the context of experiential contact-based training is incomplete. In addition, previous studies on the predictors of CQ focus

primarily on individual personality and international experience, and research on other individual differences is limited (Ng et al., 2012). Furthermore, although management education and training scholars recognize the effectiveness of cross-cultural training in developing cross-cultural competencies, there is a paucity of research on the role of individual differences in predicting cross-cultural training outcomes (Lievens, Harris, Van Keer, & Bisqueret, 2003; Littrell & Salas, 2005). Yet, the understanding of individual differences that influence the outcomes of cross-cultural training, and particularly CQ development, is important to help organizations and educational institutions select individuals who will benefit most from the training (Caligiuri & Tarique, 2006). In addition, understating the role of individual differences will enable management educators and trainers improve the design of cross-cultural training in a way that enhances the positive effects and minimizes the negative effects of individual differences.

This work aims to address these gaps by examining how individual *social dominance orientation* (SDO) and *the propensity to change stereotypes* are related to *CQ development* in the context of experiential contact-based cross-cultural training. *CQ development* refers to an increase in the level of individual CQ over time. Previous research suggests that experiential contact-based cross-cultural training is the most rigorous and effective in CQ development (MacNab, 2012; Thomas & Inkson, 2004). Contact and experience with culturally different groups in general are linked to greater CQ in a number of studies (for review see Ang et al., 2011). However, reviewing research on intergroup contact, Pettigrew (1998) posited that not all individuals might benefit equally from contact and experiences. Studies found that *SDO*—an individual generalized difference in preferences toward group-based social hierarchies and inequalities (Pratto, Sidanius, Stallworth, & Malle, 1994)—attenuates the positive outcomes of intergroup contact (Asbrock, Christ, Duckitt, & Sibley, 2012) and impedes stereotype change (Tausch & Hewstone, 2010). Social dominance theory explains that socially dominant people tend to hold on to their stereotypes and ideologies to maintain social hierarchies and dominant social status (Sidanius & Pratto, 1999). On the other hand, *the individual propensity to change stereotypes*, which in this work refers to an ability to consciously change stereotypes used to describe social groups, is an important requisite of culturally competent individuals (Adler, 2002). The triple-loop cultural learning model explains that individuals develop

greater cross-cultural competence when they are able to change their cultural baselines, which include stereotypes, beliefs, and norms (Bhawuk, Sakuda, & Munusamy, 2009). Grounding the study in the social dominance theory (Sidanius & Pratto, 1999), the triple-loop cultural learning model (Bhawuk et al., 2009), and stereotype change research (e.g., Adler, 2002; Asbrock et al., 2012; Pettigrew, 1998; Tausch & Hewstone, 2010), this work argues that SDO is negatively related to the individual propensity to change stereotypes; whereas, the propensity to change stereotypes is positively related to CQ development. The propensity to change stereotypes, therefore, mediates the relationship between SDO and CQ development.

In the following sections, I review the relevant literature and develop hypotheses delineating the relationships between SDO, the propensity to change stereotypes, and CQ development. Then, I describe the empirical study and the methods used to test my hypotheses. And, last, I discuss the implications of this work.

INDIVIDUAL FACTORS AND CQ DEVELOPMENT

CQ and Experiential Contact-Based CQ Development

CQ is conceptualized as an aggregate multidimensional construct following Sternberg and Detterman's (1986) framework of intelligence that goes beyond the cognitive view and argues that individual intelligence encompasses multiple dimensions including cognitive, metacognitive, motivational, and behavioral (Earley & Ang, 2003). *Cognitive CQ* refers to the knowledge of culture and its general and specific aspects, including values, beliefs, norms, stereotypes, ideologies, and so on. *Metacognitive CQ* encompasses higher order cognitive processes, including cultural awareness, reflection, and active challenging and adjustment of cultural knowledge to suit different cultural contexts. *Motivational CQ* involves the motivation and drive to partake in cross-cultural contact and the perseverance to deal with challenges arising during cross-cultural interactions. *Behavioral CQ* includes an ability to demonstrate culturally appropriate verbal and nonverbal behaviors in different cultural contexts.

Experiential contact-based training contributes to CQ development (Erez et al., 2013; Rosenblatt et al., 2013) and is viewed as most rigorous and effective in addressing the development of all four dimensions of CQ (Thomas & Inkson, 2004). It involves an iterative, hands-on approach that allows individuals to attain,

accommodate, and directly experience new cultural knowledge and behavioral skills. This is because when engaging in contact with members of a different group, individuals not only gain knowledge and relevant skills, but also gain greater awareness, challenge, and disconfirm current cognitions such as stereotypes (Cook, 1978), gain a broader perspective on outgroup members, and become more willing to engage with outgroup members as they curtail anxiety often accompanying cross-group interactions (Pettigrew & Tropp, 2006).

Yet, individual differences may diminish the positive effects of contact (Pettigrew, 1998). In particular, individual SDO was found to prevent engagement in intergroup contact as well as diminish the positive outcomes of intergroup experiences (Asbrock et al., 2012: 486). The following sections review the relevant research and develop hypotheses on the relationships between SDO, propensity to change stereotypes, and CQ development.

SDO and the Propensity to Change Stereotypes

According to social dominance theory (Sidanius & Pratto, 1999), our social world is structured around systems of group-based hierarchies consisting of dominant and subordinate groups. Social groups are constructed based on a variety of social variables, including culture and nationality. As a theory explaining how social group-based hierarchies are constructed and maintained, social dominance theory is relevant in a study of how individual differences influence CQ development in the context of experiential contact-based cross-cultural training because cross-cultural contact includes members of different social, specifically cultural, groups.

SDO is a psychological individual-level component of social dominance theory (Pratto et al., 1994). Following a debate on the nature of the construct, SDO has been conceptualized as an enduring, generalized measure of individual differences in support of social group-based hierarchies and domination of certain groups over others (Kteily, Ho, & Sidanius, 2012). In a number of studies, SDO demonstrated relative stability in individuals across contexts and time (e.g., Sibley, Wilson, & Duckitt, 2007; Sidanius, Sinclair, & Pratto, 2006). Because systematic variance across contexts is typical of stable individual differences, SDO is also susceptible to socialization and prolonged exposure to a particular social environment (Pratto, Sidanius, & Levin, 2006). For example, studies showed that individuals exhibit higher levels of SDO when they are socialized in

slow-changing contexts characterized by a high level of inequality and competition over power and status (Duckitt, 2001).

As a relatively stable individual difference, SDO is a powerful predictor of stereotyping, discrimination, and prejudice (e.g., Altemeyer, 1998; Ho et al., 2012; Pratto et al., 2006; Sidanius & Pratto, 1999). Socially dominant individuals tend to believe that they and the social groups they belong to are superior to others (Pratto et al., 2006). They also tend to view the world as a competitive jungle and demonstrate a competition- and threat-driven motivation for superiority and power (Duckitt, 2001). In particular, high-SDO individuals show greater stereotyping, discrimination, and prejudice when members of other social groups challenge established social hierarchies. For example, Thomsen, Green, and Sidanius (2008) demonstrated that higher SDO was associated with the greater persecution of immigrants who were willing to assimilate with a socially dominant cultural group, and who, by assimilating, could have possibly crossed the status boundary and threatened the group hierarchy.

According to social dominance theory, stereotyping allows high-SDO individuals to justify and legitimize their support for social group-based hierarchies and their discriminatory and prejudiced attitudes and actions toward members of other social groups (Sidanius & Pratto, 1999). Stereotyping involves utilization of cognitive categories when thinking about social groups (Fiske & Neuberg, 1990). As a means to simplify information processing, stereotyping helps explain social roles and status (Fiske, 1993), justify social structures and status quo (Jost & Banaji, 1994), and in general, guides behavior toward various social groups (Adler, 2002). However, stereotypes typically describe the behavioral norms of a *social group*, and by that may not accurately describe *individual group member* behavior, leading to problems. For example, Whitley (1999) found that SDO was associated with greater stereotyping of Blacks and homosexuals and, in turn, greater stereotyping was related to more prejudice toward these groups; thus, as a mechanism to justify and legitimize social group-based hierarchies and inequalities, stereotyping mediated the relationship between SDO and prejudice.

Because stereotyping plays an important role in the legitimization and enforcement of social group-based hierarchies and inequalities, socially dominant individuals are likely to exhibit lower propensity to consciously change stereotypes used to describe social groups. For example, Tausch and Hewstone (2010) have demonstrated that socially dominant

individuals remain confident in stereotypical traits of elderly people and are less likely to change stereotypes following exposure to stereotype-disconfirming evidence. The experience of disconfirmation is typical during cross-cultural contact because participants' expectations about the attitudes and behaviors of people from different cultures are often unmet (Bhawuk, 2009). These expectations are often grounded in cultural stereotypes and beliefs. The experience of disconfirmation tends to motivate individuals to learn more about people from different cultures, and thus change stereotypes, resulting in greater cross-cultural competence (Bhawuk, 2009; Rosenblatt et al., 2013). However, socially dominant individuals are likely to react differently because they are motivated to hold on to their stereotypes to preserve social dominance and hierarchies. Thus, I argue that socially dominant individuals are likely to demonstrate lower propensity to change stereotypes following contact with members of culturally different groups because for them, stereotypes serve to defend and maintain social group-based hierarchies and dominance.

> *Hypothesis 1: Social dominance orientation is negatively related to the individual propensity to change stereotypes following cross-cultural contact.*

The Propensity to Change Stereotypes and CQ Development

Individuals tend to be more internationally competent and effective when they are conscious of their stereotypes and change them in light of their social experiences (Adler, 2002). As information-processing aids, stereotypes are a universal and normal part of human cognition (Adler, 2002). Sometimes people are conscious of the stereotypes they use, and sometimes stereotypes are automatically prompted without individual awareness through the mere presence of a stimulus (Banaji, Lemm, & Carpenter, 2001). Some stereotypes express cognitive representations of real differences between social groups (e.g., cultural stereotypes about food differences) and may characterize groups somewhat accurately; other stereotypes express cognitive representations of social groups based on certain enduring individual qualities (e.g., religion, ethnicity) and pose a dangerous potential for erroneous perception and judgment (Hilton & Von Hippel, 1996). Thus, stereotypes can be helpful or harmful. Stereotypes are helpful when they are consciously held and actively changed to

more accurately characterize groups based on actual observations and experiences with these groups (Adler, 2002).

According to stereotype change models, stereotype change typically occurs as individuals become aware of and acquire new stereotype disconfirming information (Hilton & Von Hippel, 1996). For example, a salesperson expecting Russians not to smile in a meeting with strangers may experience a stereotype disconfirmation after seeing a smiling Russian executive at an initial business meeting. Stereotype change models provide different accounts for how stereotype change occurs (Rothbart, 1981; Weber & Crocker, 1983), but all models suggest it involves changes in existing cognitive structures or development of new ones as a result of new disconfirming information. Greater cognitive CQ develops when individuals expand their cultural cognition with new information (Tan & Chua, 2003); thus, a greater propensity to modify stereotypes is likely to result in greater cognitive CQ development. In addition, because conscious change in stereotypes involves greater awareness and adjustment in cultural cognition, individuals with greater propensity to change stereotypes are likely to develop greater metacognitive CQ. Because the experience of disconfirmation during stereotype change "might be viewed as a motivational construct with properties similar to those of 'drive' within a traditional learning theory" (Pallak & Pittman, 1972: 349), greater propensity to change stereotypes may result in greater drive to learn about different cultures as a result of disconfirmation and, by that, lead to greater motivational CQ. Last, greater propensity to change stereotypes is likely to result in greater behavioral CQ development because stereotypes guide individual behavior toward members of different groups (Snyder, Tanke, & Berscheid, 1977), and conscious changes in stereotypes may result in adjustments to more culturally appropriate behavior during cross-cultural interactions. In sum, since greater propensity to change stereotypes is likely to result in greater cultural knowledge, awareness and adjustment of cultural cognition, motivation to learn about cultures, and ability to change behaviors to fit culturally different contexts, I posit that greater propensity to change stereotypes is positively related to overall CQ development following cross-cultural contact.

> *Hypothesis 2: The individual propensity to change stereotypes is positively related to CQ development following cross-cultural contact.*

The Mediating Role of the Propensity to Change Stereotypes

Previous studies demonstrated that stable individual differences influence more context-specific and malleable CQ development (Li, Mobley, & Kelly, 2013; Şahin, Gurbuz, & Köksal, 2014). Consequently, I expect that SDO predicts CQ development in the context of experiential contact-based cross-cultural training. Previously, SDO has been found to defeat the positive effects of contact with members of different social groups (Asbrock et al., 2012; Asbrock, Gutenbrunner, & Wagner, 2013). According to Asbrock et al. (2013), high-SDO individuals do not respond to the positive effects of intergroup contact because of their competitive, threat-driven orientation to maintain social group-based hierarchy and inequality—which stems from seeing the world as a competitive place—where individuals struggle for power, where the powerful win, and where losing means someone else will dominate.

Competitive and threat-driven orientation toward dominance among high-SDO individuals influences their cognition, motivation, and behavior. For example, individuals who view themselves as members of a dominant group tend to attend more to stereotype-consistent information and disregard new individuating, disconfirming information (Goodwin, Gubin, Fiske, & Yzerbyt, 2000; Guinote & Phillips, 2010). Because cultural cognition develops when individuals pay attention to and reflect on new disconfirming evidence during cross-cultural contact (Bhawuk, 2009), high SDO is likely to be associated with lower cognitive CQ development. In addition, because socially dominant individuals are less likely to question and modify their stereotypes and beliefs to preserve current social hierarchies (Tausch & Hewstone, 2010), high SDO is likely to be associated with lower metacognitive CQ development, which encompasses conscious awareness, reflection, and change in cognition. Furthermore, since high-SDO individuals tend to avoid intergroup contact because they feel threatened by other social groups in a struggle for dominance (Asbrock et al., 2012), high SDO is likely to be related to lower motivational CQ development encompassing the motivation to interact with culturally different groups. Last, to preserve power, prestige, and inequalities, individuals motivated by dominance are more likely to engage in self-serving behaviors (Maner & Mead, 2010), even unethical behaviors that defy expected social norms (Alexandra et al., 2017; Hing, Bobocel, Zanna, & McBride, 2007). Thus, it is

likely that SDO is negatively related to behavioral CQ development because high SDO individuals are more likely to act in self-interest rather than adjust their behaviors to meet the expectations of others during cross-cultural interactions. On the whole, the above arguments suggest that SDO is likely to be negatively related to overall multidimensional CQ development in the context of experiential contact-based cross-cultural training.

The relationship between stable individual differences such as SDO and malleable learning performance constructs such as CQ development is often indirect and mediated by state-like individual differences. This is because stable individual differences are more distal and nonspecific to learning outcomes, whereas state-like constructs are more proximal, malleable, context specific, and serve as connectors between stable individual differences and learning outcomes (Chen, Gully, Whiteman, & Kilcullen, 2000). Accordingly, this work posits that SDO is related to CQ development indirectly by means of the individual propensity to change stereotypes. This propensity is malleable because individuals can become more aware of their stereotypes and change them when faced with disconfirming evidence (Adler, 2002). It is context-specific because stereotype change depends on a situation (Weber & Crocker, 1983; Wyer, Sadler, & Judd, 2002).

The process underlying the mediating role of the individual propensity to change stereotypes can be explained by social dominance theory (Sidanius & Pratto, 1999) and the triple-loop cultural learning model (Bhawuk et al., 2009). Social dominance theory argues that as a mechanism to justify and legitimate social group-based hierarchies and inequalities, stereotyping mediates the relationship between SDO and a variety of intergroup outcomes (Sidanius & Pratto, 1999; Whitley & Ægisdóttir, 2000). Accordingly, high SDO individuals are less likely to change their stereotypes to preserve social group-based hierarchies and inequality (Tausch & Hewstone, 2010). On the other hand, the triple-loop cultural learning model (Bhawuk et al., 2009) emphasizes the importance of change in cultural baselines such as stereotypes for cross-cultural learning. To become more culturally competent, it is essential for individuals to question the appropriateness of their stereotypes and modify them to produce culturally appropriate interaction strategies and responses. Combining both frameworks, I predict that socially dominant individuals, who are motivated to sustain social hierarchy and inequality, tend to show lower propensity to change stereotypes; in turn,

lower propensity to change stereotypes is associated with lower CQ development in socially dominant individuals because their cultural baselines are likely to remain unchanged following experiences with a culturally different group.

Hypothesis 3: The individual propensity to modify stereotypes mediates the relationship between SDO and CQ development following cross-cultural contact.

METHOD

Participants and Procedures

The hypotheses were tested in a pre- and postdesign study involving 122 postgraduate students participating in an experiential cross-cultural training program as part of cross-cultural management courses at a large private university in Australia. The participants were on average 25.9 years old, 56% were female, and 62% had international travel experience. Participants represented 28 nationalities with a wide range of cultural backgrounds: 43% were born in China, 16% in Australia, 7% in Germany, 3% in Japan, 3% in Hong Kong, 3% in Colombia, 3% in the US, and the remaining 22% in 21 other countries.

The experiential cross-cultural training program involved a 7-stage intervention that was grounded in experiential-learning approaches (Kolb, 1984; Thomas & Inkson, 2004) and lasted 6–8 weeks (for details, see MacNab, 2012; Rosenblatt et al., 2013). Stage 1 ("Awareness development") was designed to provide the participants with a basic knowledge of culture and related processes. This basic knowledge is important because it provides individuals with a foundation for paying attention to and appreciating cultural differences during cross-cultural interactions (Thomas & Inkson, 2004). In Stage 2 ("Experimental instructions"), the participants were provided with instructions on seeking out contact with members of a new culturally different group. Stage 3 ("Pre-experience check") involved the participants submitting a description of their intended contact to ensure that the contact met all the requirements. During Stage 4 ("New cultural experience"), participants took part in their new experiences with a culturally different group. The participants chose a variety of contact types, including interactions with culturally different religious groups (e.g., Greek Orthodox, Tibetan Monks, Mormons, Catholics, etc.); participation in culturally different recreational activities (e.g., Japanese Kendo, Brazilian Capoeira, Spanish Flamenco, etc.); and interactions with families from different cultures (e.g., preparing a traditional dinner with a Macedonian family). Stage 5 ("Post-experience internalization") involved the participants reflecting in writing on their experiences and successes and failures as related to CQ. In Stage 6 ("Feedback and communication"), the participants received feedback from the instructors based on the assignment requirements and material application. Last, during Stage 7 ("Social sharing"), the participants partook in small group open discussions of their experiences with others.

The data were collected using three surveys. Survey 1 was conducted prior to the CQ training program and collected data on the initial levels of CQ and demographic variables. Survey 2 was conducted toward the end of the CQ training program as part of an unrelated project and collected data on SDO.[1] Survey 3 was conducted right after the CQ training program and collected data on the individual propensity to change stereotypes and posttraining CQ. The responses from the three surveys were matched using student ID numbers. To minimize the possibility of socially desirable responses and common method variance, participants were told that their data would remain confidential and that student IDs would be used strictly to match data. Participants were also told that individual responses would not be analyzed or identified in the results. In addition, participants were guaranteed that the information they submitted in the survey would not influence their course grades. The response rate was over 90%.

Measures

Social dominance orientation. SDO was assessed using an established 14-item 5-point Likert-type scale (1 = *strongly disagree* and 5 = *strongly agree*) measuring the individual support of social group-based hierarchies, inequalities, and differential treatment of people in different social groups (Pratto et al., 1994). The scale was previously validated across samples in a number of different countries (Pratto et al., 2000). For instance, one sample item is "Some groups of people are simply not the equals of others." Cronbach's alpha was 0.82.

Propensity to change stereotypes. The propensity to change stereotypes was assessed following contact with members of a culturally different group using

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[1] Following research that described SDO as a fairly stable individual difference variable across situations (Sidanius & Pratto, 1999; Altemeyer, 1998), this study assumed that SDO scores were not influenced by the cross-cultural training.

a previously validated 5-item 5-point Likert-type self-report scale (1 = *strongly disagree* and 5 = *strongly agree*) assessing the individual conscious capability to change their stereotypes (MacNab, O'Connor, Rosenblatt, Worthley, & Hannifin-MacNab, 2012). An example item is "I am capable of changing my stereotypes about people I interact with (currently, following the new culture experience)." Cronbach's alpha was 0.84.

CQ development. CQ development was determined by a difference between the pre- and posttraining CQ scores assessed in Survey 1 and Survey 3, respectively. CQ was measured using a previously validated 20-item 5-point Likert-type scale (1 = *strongly disagree* and 5 = *strongly agree*) measuring four dimensions of CQ (Ang et al., 2007): Cognitive CQ (sample item: "I know the cultural values and religious beliefs of other cultures;" Cronbach's alpha pretraining was 0.78 and posttraining was 0.80); Metacognitive CQ (sample item: "I adjust the accuracy of my cultural knowledge as I interact with people from different cultures;" Cronbach's alpha pretraining was 0.71 and posttraining was 0.84); Motivational CQ (sample item: "I enjoy interacting with people from different cultures;" Cronbach's alpha pretraining was 0.81 and posttraining was 0.80): and Behavioral CQ (sample item: "I change my nonverbal behavior when a cross-cultural situation requires it;" Cronbach's alpha pretraining was 0.66 and posttraining was 0.80). The overall CQ scale demonstrated high reliability (Cronbach's alpha pretraining was 0.85 and posttraining was 0.90).

Control Variables

Demographic variables. This study controlled for *gender* (1 = female, 0 = male), *age*, and *international experience* (1 = has one or more previous international experiences prior to turning 18 years old; 0 = no international experience prior to turning 18 years old) because these variables have been found to influence individual CQ (Kim & Van Dyne, 2012). This work controlled for international experience during the formative years given the participants' age groups and prior evidence that experience during formative years may enhance cross-cultural training outcomes (Caligiuri & Tarique, 2006). Because over 84% of the participants were foreign-born, and a large number of participants were born in China, this study controlled for whether participants were *born in Australia* (1 = born in Australia and currently lives in Australia; 0 = not born in Australia but currently lives in Australia) and *born in China*

(1 = born in China and currently lives in Australia; 0 = not born in China and currently lives in Australia).

Social desirability. This study controlled for social desirability response bias using a previously validated 10-item impression management scale (Steenkamp, de Jong, & Baumgartner, 2010) assessing the individual propensity to systematically and consciously overreport socially desirable behaviors and underreport socially undesirable behaviors (sample item: "I never cover up my mistakes;" Cronbach's α was 0.64).

Perceived cultural distance. In addition, this study controlled for perceived cultural distance between the chosen contact group and the participant's culture because cultural distance may have an impact on the development of cross-cultural competence (Johnson et al., 2006). Perceived cultural distance was measured with a question asking participants to indicate the degree of cultural difference between the culture and values of the chosen contact group and the participant's culture and values (1 = low cultural distance, very similar culture and values, 3 = high cultural distance, very different culture and values).

Analyses Overview

To test the hypothesized relationships, structural equation modeling (SEM) procedures based on the analysis of covariance structures were used. Since the relationships between the latent constructs were hypothesized a priori, a confirmatory approach with maximum likelihood estimation was taken. The analyses were conducted using SPSS Amos 21 software.

Prior to testing the hypothesized relationships, measurement invariance for the repeated measures of the CQ construct was tested to ensure that the meaning of the construct and measurement properties of the construct indicators remained the same over time. This study used the confirmatory factor analysis approach recommended by Brown (2006), which included the establishment of factor structure, factor loadings, and indicator intercept equivalence using a hierarchical set of analyses with the chi-square difference test.

Structural equation modeling analyses were conducted using a two-step approach to SEM (Anderson & Gerbing, 1988). In the first step, a measurement model was fitted to the data to validate the scales. In the second step, the hypothesized structural model was fitted to the data. The fit of the models was examined using a predominant two-index presentation strategy (Hu & Bentler, 1998), which uses

a combination of an incremental fit index (i.e., Comparative Fit Index, or CFI: recommended values close to 0.95) and an absolute index (i.e., root mean square error of approximation or RMSEA: recommended values close to 0.05).

Following the establishment of the structural model fit, the hypotheses were tested. Hypotheses 1 and 2 (direct effects) were tested using path analyses. Hypothesis 3 (indirect effect) was tested using the bias-corrected bootstrap estimation procedure in AMOS with 1000 bootstrap samples and 95% confidence intervals recommended by Cheung and Lau (2008). The bootstrap method has been suggested as a superior test of mediation effects with latent variables because it allows controlling for the effects of the measurement errors and the nonnormal sampling distribution of indirect effects (Cheung & Lau, 2008; Preacher & Hayes, 2004).

RESULTS

Measurement Invariance

Table 1 shows the results of the measurement invariance testing for the CQ construct. First, factor structure equivalence was established by fitting the structural CQ model to CQ data at both survey occasions and showing acceptable fit (CFI = 0.90, RMSEA = 0.05). Second, full factor loading equivalence was demonstrated by imposing the equality constraints on the factor loadings at both testing times and demonstrating that the chi-square change between the unconstrained and constrained models was not significant. Third, indicator intercept equivalence was tested by imposing the equality constraints on the indicator intercepts and assessing the chi-square change between the model with indicator intercepts and factor loadings constrained and the model with only factor loadings constrained. The chi-square difference test was significant and six of 20 responsible parameters were identified by using the critical ratio difference method in Amos described by Byrne (2001). After the equality constraints for these six indicator intercepts were relaxed, the

chi-square test was not significant, indicating partial indicator intercept equivalence as recommended by Vandenberg and Lance (2000) for the establishment of longitudinal measurement equivalence. Overall, full structural and factor loading equivalence and partial indicator intercept equivalence indicate that the meaning of the CQ construct and the measurement properties of its indicators remained practically the same over time.

Measurement Model

The measurement model consisted of four latent variables (SDO, the propensity to change stereotypes, CQ development, and social desirability) and seven single indicators representing the rest of the control variables (gender, age, international experience, born in Australia, born in China, international experience, and perceived cultural distance). To form the measurement model with an adequate sample-size-to-parameter ratio, the items were assigned to parcels for all latent variables, and these parcels were averaged to make up indicators (Bentler & Chou, 1988). The number of parcels chosen for each construct satisfied Bollen's (1989) recommendation of a minimum of two indicators per latent construct. Fourteen SDO items were randomly assigned to four parcels, five items measuring the propensity to change stereotypes were randomly assigned to two parcels, 20 CQ development items were assigned to four parcels representing the four dimensions of CQ, and 10 social desirability items were randomly assigned to three parcels. The measurement model provided good fit to the data (CFI = 0.94, RMSEA = 0.05). All standard factor loadings were significant and ranged from 0.48 to 0.96.

Correlations

Table 2 shows means, standard deviations, and zero-order correlations for all study variables. In addition to CQ development, pretraining and posttraining CQ variables are included. To make sure that CQ significantly increased following the training, a *t* test for the pre- and posttraining CQ was performed. The

TABLE 1
Summary of Models and Goodness-of-Fit Tests Assessing CQ Measurement Invariance ($N = 122$)

Model	CFI	RMSEA	$\Delta\chi2 / \Delta df$	*p* value
Model 1: Unconstrained (factor structure equivalence)	.90	0.05		
Model 2: Factor loadings equivalence	.90	0.05	19.79/16	0.230
Model 3: Indicator intercept equivalence	.88	0.05	62.58/32	0.001
Model 3a: Partial indicator intercept equivalence	.90	0.05	33.44/26	0.150

TABLE 2
Means, Standard Deviations, and Zero-Order Correlations ($N = 122$)

	Variable	*M*	*SD*	1	2	3	4	5	6	7	9	10	11	12
1.	Social dominance orientation	2.48	0.54											
2.	Propensity to change stereotypes	4.29	0.50	**-0.34***										
3.	CQ development	0.37	0.45	-0.03	**0.29***									
4.	CQ pretraining	3.69	0.43	-0.08	**0.30***	**-0.58***								
5.	CQ posttraining	4.06	0.40	-0.13	**0.64***	**0.50***	**0.41***							
6.	Female	0.56	0.50	-0.12	-0.07	-0.11	0.01	-0.11						
7.	Age	25.90	4.27	0.04	-0.03	-0.05	0.03	-0.03	-0.14					
9.	Born in Australia [a]	0.16	0.36	-0.12	0.09	0.01	0.08	0.10	**-0.30***	0.16				
10.	Born in China [b]	0.43	0.50	0.02	-0.08	-0.03	-0.02	-0.06	**0.31***	**-0.28***	**-0.38***			
11.	International experience [c]	0.62	0.49	-0.04	0.03	0.06	-0.01	0.06	-0.05	-0.14	0.05	**-0.31***		
12.	Social desirability	3.04	0.48	**-0.32***	**0.20***	-0.07	**0.19***	0.12	0.14	0.15	-0.09	0.10	-0.12	
13.	Perceived cultural distance [d]	2.50	0.53	0.08	0.05	**0.24***	-0.07	**0.19***	**-0.22***	0.12	-0.02	**-0.23***	0.16	-0.05

[a] Born in Australia (1 = born in Australia and currently lives in Australia; 0 = not born in Australia but currently lives in Australia).

[b] Born in China (1 = born in China and currently lives in Australia; 0 = not born in China and currently lives in Australia).

[c] International Experience (1 = has one or more previous international experiences prior to turning 18 years old; 0 = no international experience prior to turning 18 years old).

[d] Perceived cultural distance (1 = low cultural distance, very similar culture/values; 3 = high cultural distance, very different culture/values).

* Significant at least at $p < 0.05$.

results indicated that the difference in the average CQ scores was positive and significant (pretraining average CQ = 3.69, posttraining average CQ = 4.06, average CQ Development = 0.37, $t = 9.00$, $p < 0.0001$).

Structural Model and Hypotheses Testing

The hypothesized structural model demonstrated good fit to the data (CFI = 0.94, RMSEA = 0.05). Predictors explained 21% of the variance in the individual propensity to change stereotypes and 23% of the variance in CQ development. The results of the path analyses supported Hypotheses 1 and 2, demonstrating that SDO was negatively related to the individual propensity to change stereotypes and the propensity to change stereotypes was positively related to CQ development (see Table 3 and Figure 1). The results of the bootstrap estimation procedure supported Hypothesis 3, showing that SDO was indirectly related to CQ development (see Table 3 and Figure 1). Among control variables, social desirability was negatively related to SDO (standardized direct effect = - 0.43, $p < 0.01$), being born in Australia was negatively related to SDO (standardized direct effect = - 0.21, $p < 0.05$), and the perceived cultural distance was positively related to CQ development (standardized direct effect = 0.25, $p < 0.05$).

Given the aggregated and highly interrelated nature of the four CQ dimensions, this work examined the effects of SDO and the propensity to change stereotypes on the aggregate CQ development construct. However, for the completeness of the results, four separate structural models—each with one of the four CQ development dimensions as a criterion variable—were tested. All four models demonstrated good fit (CFI ranging from 0.91 to 0.98, RMSEA ranging from 0.03 to 0.06). Table 3 summarizes the results. The negative relationship between SDO and the propensity to change stereotypes was significant across all four models. The positive relationships between the propensity to change stereotypes and three out of four CQ development dimensions were significant: metacognitive, motivational, and behavioral. Only the relationship between the propensity to change stereotypes and cognitive CQ development was not significant. Furthermore, SDO was indirectly related to

<div align="center">

TABLE 3
Model Estimates Including Standardized Estimates for Testing Hypotheses ($N = 122$)

</div>

Hypothesis	Estimate[a]	SE[b]	p value
Overall CQ			
1. Social dominance orientation → Propensity to change stereotypes	-0.31	0.08	$p < 0.01$
2. Propensity to change stereotypes → CQ development	0.36	0.11	$p < 0.01$
3. Social dominance orientation → CQ development [c]	- 0.11	0.07	$p < 0.05$
Motivational CQ			
1. Social dominance orientation → Propensity to change stereotypes	-0.33	0.09	$p < 0.01$
2. Propensity to change stereotypes → Motivational CQ development	0.23	0.16	$p < 0.05$
3. Social dominance orientation → Motivational CQ development [c]	- 0.07	0.05	$p < 0.05$
Behavioral CQ			
1. Social dominance orientation → Propensity to change stereotypes	-0.36	0.09	$p < 0.01$
2. Propensity to change stereotypes → Behavioral CQ development	0.38	0.15	$p < 0.01$
3. Social dominance orientation → Behavioral CQ development [c]	- 0.14	0.08	$p < 0.05$
Metacognitive CQ			
1. Social dominance orientation → Propensity to change stereotypes	-0.29	0.08	$p < 0.05$
2. Propensity to change stereotypes → Metacognitive CQ development	0.23	0.16	$p < 0.05$
3. Social dominance orientation → Metacognitive CQ development [c]	- 0.07	0.05	$p < 0.05$
Cognitive CQ			
1. Social dominance orientation → Propensity to change stereotypes	-0.29	0.08	$p < 0.05$
2. Propensity to change stereotypes → Cognitive CQ development	0.14	0.12	*ns*
3. Social dominance orientation → Cognitive CQ development [c]	- 0.04	0.04	*ns*

Notes. Although the table does not depict this for the ease of presentation, the study controlled for the effects of age, gender, country of origin (born in Australia and born in China), international experience, social desirability, and the perception of cultural distance on all constructs represented in the model.

[a] standardized parameter estimate.
[b] standard error.
[c] indirect effect.

metacognitive, motivational, and behavioral CQ development, but not cognitive CQ development.

Common Method Variance

Survey-based studies tend to be susceptible to common method variance (CMV) bias, which refers to a spurious error variance that is attributable to the same measurement method or source rather than the construct of interest (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). To provide a level of assurance that CMV has not influenced the statistical and practical significance of the results, this study took a number of procedural precautions and performed statistical tests as recommended by Podsakoff et al. (2003). First, the data on the predictor and criterion variables were collected using three different surveys conducted at three different times. Second, the participants were assured that their individual responses

were confidential, would not be identified in the results, and would not have any influence on their course grades. Third, the study controlled for social desirability, which is commonly assumed to cause CMV. Last, the Harmon Single Factor Test, which involves loading all latent variable indicators on a single latent factor in a confirmatory factor analysis, was performed. The results demonstrated that the single factor model fit poorly to the data (CFI = 0.59, RMSEA = 0.12), providing further evidence that CMV did not influence the significance of the results.

DISCUSSION

This study contributes to management learning and education literature by enriching the research on cross-cultural training and CQ development. By answering calls for better understanding of the role of

FIGURE 1
**Results of the Structural Equation Modeling
Analysis With Standardized Parameter Estimates**
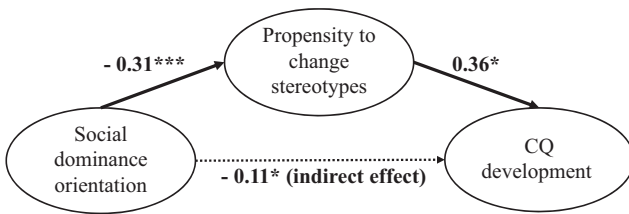
Note. Although the model does not depict this for the ease of presentation, the study controlled for the effects of age, gender, country of origin (born in Australia and born in China), international experience, social desirability, and the perception of cultural distance on all constructs represented in the model. $N = 122$. * $p < 0.01$; *** $p < 0.0001$

individual differences in CQ development and the outcomes of cross-cultural training at large (Littrell & Salas, 2005; Ng et al., 2012), this work examines how SDO and the propensity to change stereotypes are associated with CQ development in the context of experiential contact-based cross-cultural training. The results indicate that training participants who reported greater propensity to change stereotypes following cross-cultural contact also demonstrated greater CQ development at the end of the training. However, individuals scoring higher on SDO reported lower propensity to change stereotypes following cross-cultural contact and, as a result, showed lower CQ development. Thus, SDO was negatively related to the propensity to change stereotypes and CQ development, and the propensity to change stereotypes mediated the relationship between SDO and CQ development.

By showing that SDO and the propensity to change stereotypes predicted CQ development, this study goes beyond personality and international experience variables to expand our limited understanding of individual antecedents of CQ. It also adds to the limited research on predictors of cross-cultural training outcomes in general. The results support Ng et al.'s (2012: 39) argument that "individual differences are... likely to affect how international experiences translate into CQ" and show that experiential contact-based cross-cultural training resulted in better outcomes for participants with greater propensity to change stereotypes and did not work as well for those with greater SDO. The results also reinforce previous arguments that "cross-cultural training may only be effective when ... [participants] are predisposed to success in the first place" (Caligiuri, 2000: 85).

This study also adds to social dominance theory research by uncovering additional undesirable outcomes of SDO. Previous studies showed that socially dominant individuals tend to avoid intergroup contact and, if they do engage in it, these individuals are less likely to change their prejudiced attitudes or negative emotions toward members of other groups (Asbrock et al., 2012, 2013). This study also adds evidence to research demonstrating the negative impact of SDO on the outcomes of intergroup contact by showing that that SDO attenuates CQ development following experiential cross-cultural training involving contact with members of a culturally different group. Furthermore, this study provides additional evidence for a previously reported negative relationship between SDO and stereotype change (Tausch & Hewstone, 2010) by exposing the negative relationship between SDO and the propensity to change stereotypes in the context of experiential contact-based cross-cultural training.

The results of this study also contribute to the literature highlighting the importance of stereotype change in cross-cultural effectiveness and learning. Specifically, by demonstrating a positive relationship between the propensity to change stereotypes and CQ development, this work provides supporting evidence for Adler's (2002) effective stereotyping argument. According to Adler (2002: 83), individuals often fail "to accept stereotyping as a natural process and have consequently failed to learn to use it to [their] advantage." People are more likely to be cross-culturally effective if they are conscious of their stereotypes and actively change stereotypes based on cross-cultural observations and interactions. Participants here sought out and engaged in cross-cultural contact as part of the experiential cross-cultural training. In line with Adler (2002), participants who self-reported greater propensity to consciously change stereotypes about cultural groups also reported greater ability to adapt and function effectively in culturally diverse contexts following the training.

The finding regarding the positive relationship between the propensity to change stereotypes and CQ development also provides support for the triple-loop cultural learning model (Bhawuk et al., 2009). The model describes the adjustment effective intercultural learners make in their cultural baselines, which may include the learner's native cultural beliefs and stereotypes, as they iterate through mental loops during cross-cultural interactions and develop cross-cultural competencies. In the first learning loop, individuals scan the environment for information, check the information against their native cultural baselines (e.g., stereotypes, beliefs, values), and produce a set of

response strategies and behaviors. If the responses are appropriate, little learning happens; if they are inappropriate, individuals are likely to experience disconfirmation or dissonance, which may either lead to avoidance of cultural differences and contact all together or result in greater motivation to challenge native cultural baselines by entering the next learning loop. In the second and third learning loops, individuals again scan the environment, this time questioning the appropriateness of their cultural baselines, and change those that seem inappropriate. The difference between the second and third loops is in how the baselines are changed. In the second loop, which is common in bicultural settings, the individuals tend to simply adopt the cultural baselines of another cultural group. In the third loop, which is common in multicultural settings, individuals may realize that simply adopting another cultural perspective is not enough: They have to synthesize and converge the baselines of the participants from multiple cultures.

Providing support for the arguments put forth by Bhawuk et al. (2009), this study shows that individuals demonstrate greater intercultural learning captured by CQ development if they report greater propensity to consciously adjust their cultural baselines by changing stereotypes following cross-cultural contact in the context of cross-cultural training. The data collected in here cannot determine whether participants were able to change their stereotypes as a result of the second or third loop of the cultural learning process because we do not have data on whether participants changed their stereotypes by adopting the stereotypes of other cultures or by synthesizing their stereotypes with the stereotypes of others. However, the data did show that individuals scoring lower on SDO reported greater propensity to change stereotypes and, as a result, developed greater CQ—thus suggesting that low-SDO participants were more motivated to enter the second and third loops of cultural learning than were high-SDO participants.

Last, the supplementary investigation determined that of the four CQ dimensions, the propensity to change stereotypes had the strongest relationship with behavioral CQ development. According to Snyder et al. (1977), stereotypes provide a basis for predicting other people's behaviors and guide individual interactions with others. Because behavioral CQ encompasses an ability to adjust and exhibit culturally appropriate behaviors during cross-cultural interactions, the finding that individuals with greater propensity to change stereotypes were more likely to adjust their behavior and responses for a particular cross-cultural context is not surprising.

The results also showed that the propensity to change stereotypes was not related to cognitive CQ development. This was both unexpected and thought provoking. One plausible explanation may lie in the nature of the scale measuring cognitive CQ. The questions comprising the cognitive CQ subscale assess individual knowledge of legal and economic systems, language rules, cultural values and religious beliefs, marriage systems, arts and crafts, and rules for expressing nonverbal behaviors in other cultures. If a cross-cultural experience involved acquisition of knowledge related to cultural stereotypes, but did not involve acquisition of knowledge related to the cultural elements measured by the cognitive CQ subscale, the cognitive CQ subscale may not have captured a change in CQ due to a lack of questions probing the knowledge related to cultural stereotypes. Future studies should explore other cognitive CQ measures as described below.

LIMITATIONS AND FUTURE RESEARCH

This work has a number of limitations that provide an avenue for future research. One lies in the use of self-report measures of CQ (Ang et al., 2007) and the propensity to change stereotypes (MacNab et al., 2012). Because the use of self-report measures may be associated with common method variance bias and social desirability bias (Podsakoff & Organ, 1986), this work tested and did not find evidence for these potential issues. However, future studies should consider using other measures. For example, in addition to a widely utilized self-report CQ measure used here, Leung, Ang, and Tan (2014) recommended that future studies use informant-based CQ measures, where knowledgeable informants report on a focal person's CQ, and performance-based CQ measures, where focal persons demonstrate their CQ in a standardized test. The use of alternative measures may reveal different and unique perspectives. For example, self-report measures may reflect individual self-concept, while informant-based measures may reflect individual reputation and status (Leung et al., 2014). Similarly, future studies should use alternative measures of the propensity to change stereotypes. For example, a measure could ask participants to describe their stereotypes about a culture before and after contact with that culture. Raters can then analyze whether their stereotypes changed by analyzing the differences between the two.

Another limitation stems from the fact that the data on SDO were collected toward the end of the experiential cross-cultural training program due to research

design limitations. Following previous studies that demonstrated SDO stability across time and contexts (Kteily et al., 2012; Sibley et al., 2007; Sidanius et al., 2006), this study assumes that SDO does not change considerably in short periods of time or across contexts. However, limited research suggested that certain contextual conditions might influence SDO levels. For example, Guimond et al. (2003) showed that SDO changes as a result of social group position manipulation. Yet, Morrison et al. (2009) revealed that the change in social group position alone did not change SDO; instead, both social group position and group identification interacted to predict SDO only under the condition of high intergroup threat, but not under the condition of low intergroup threat. Thus, research on how context might influence SDO is still inconclusive. Although this study did not measure the strengths of group threat, status, or identification, the students willfully chose new cultures to interact with and arguably were not very likely to experience a high level of threat from those culturally different groups. However, future studies should measure SDO before and after training to ensure the stability of the construct. In addition, future studies should investigate the effects of context variables, such as perceived group threat, social group status, and group identification on the relationships between SDO, the propensity to change stereotypes, and CQ development. For examples of manipulations and priming methods, see Morrison et al. (2009) or Costello and Hodson (2011).

Other types of contexts should also be examined. This study investigated the hypothesized relationships in the context of contact-based cross-cultural training. Future studies could investigate whether the relationships hold in other cross-cultural interactions, such as study or internship abroad or international assignments, and cross-cultural training approaches, such as attribution training or experiential training involving role-playing. Furthermore, future research should investigate the role of organizational and societal contexts. Social dominance theory (Sidanius & Pratto, 1999) posits that organizational and societal support of social hierarchies may interact with SDO to perpetuate social group-based hierarchies, inequalities, stereotyping, and discrimination by unequally allocating resources and enforcing values, norms, and beliefs that uphold inequality. Thus, the relationship between SDO, the propensity to change stereotypes, and CQ development may differ depending on the level of endorsement of social hierarchies and inequalities in organizations and societies where cross-cultural interactions or training take place.

Last, this study examined only one mediator in the relationship between SDO and CQ development. Stereotyping represents one of many legitimizing factors that support the relationship between SDO and various attitudinal and behavioral outcomes (Sidanius & Pratto, 1999). Others include the use of institutionalized beliefs, values, norms, and ideologies, so future research could examine their roles in the relationship between SDO and CQ development.

Practical Implications

My results also have practical implications for selecting for and designing cross-cultural training. Most international organizations and educational institutions realize the importance of cross-cultural training for enhancing individual cross-cultural competences and effectiveness, yet until recently, the general assumption was that everyone benefits equally from cross-cultural training (Caligiuri & Tarique, 2006). Given high financial and emotional costs of developing cross culturally effective employees and leaders, it is important to understand who will benefit the most from cross-cultural training. My results suggest that high-SDO individuals may not benefit from experiential contact-based cross-cultural training in terms of CQ development to the same extent as low-SDO individuals. Since SDO is a relatively stable individual difference and is relatively easy to assess, management educators and trainers may consider using SDO as one of the selection criteria for experiential contact-based cross-cultural training. Reduced costs and greater organizational effectiveness on international projects may be realized if people who are predisposed to succeed in developing greater cross-cultural competences are selected for cross-cultural training (Lievens et al., 2003).

Furthermore, individual differences may also be considered in training design. Commenting on cross-cultural training, Earley and Peterson (2004: 103) remarked that "the first and most important weakness in current approaches is the imbedded assumption that all individuals need a similar exposure and training regime. . . ." Trainers can select from various approaches when designing cross-cultural training, ranging from classroom-based attribution training to experiential contact-based training (Littrell & Salas, 2005). Although more research is needed on the fit between individual characteristics and cross-cultural training approaches, this study suggests that training designers keep in

mind that experiential contact-based training is more appropriate for low-SDO individuals.

Furthermore, given the finding of a positive relationship between the malleable individual propensity to change stereotypes and CQ development, this work suggests including modules to enhance the propensity to change stereotypes during the early stages of contact-based cross-cultural training. One possible way is to expose participants to cultural assimilators in a controlled classroom setting prior to participants' engagement in cross-cultural contact (for more information and examples of cultural assimilators, see Cushner & Brislin, 1996). *Cultural assimilators* employ short vignettes in which characters from different cultural groups interact and experience disconfirmations. For each vignette, training participants are presented with alternative explanations for characters' experiences and asked to select the one that best accounts for the root of the problem. The experience and explanation of disconfirmations motivate the participants to expand their cultural knowledge and change their current stereotypes based on the newly acquired cultural knowledge (Cushner & Brislin, 1996). Enriching experiential contact-based training with a module that enhances participants' propensity to change stereotypes in the early stages of the training may improve the training outcomes and result in greater CQ development.

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