

Effects of Cross-Cultural Management Courses on Cultural Intelligence

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ABSTRACT

The rapid increase in academic courses dealing with cross-cultural management topics, brought about by globalisation of economies and increased mobility of workforce motivated us to examine the impact of such courses on cultural intelligence. Cultural Intelligence (CQ) is a recently developed multidimensional concept, which includes four dimensions: Metacognitive, Cognitive, Motivational and Behavioural. CQ refers to individual's abilities and skills to effectively manage interactions in cross cultural situations and, as such, is a crucial competence for successful international managers. In two multinational longitudinal pre-post studies, we assessed the effects of graduate cross-cultural management courses on CQ and found that at Time 2, all four CQ dimensions were significantly higher than in Time 1. We also found that distal cross-cultural capital factors were significantly related to CQ. The study contributes to understanding the antecedents to cultural intelligence and tests, in a field setting, the effects of educational interventions on CQ. Findings have meaningful implications for the development of international management education and training programs.

INTRODUCTION

The rapid increase of globalization processes in many aspects of social and work life in the last two decades of the 20th century resulted in record numbers of individuals who have been socialized in significantly different cultures interacting and working with each other on a daily basis. This situation created an acute need to understand the role of (national) culture in management and organizations and lead to an urgent need for cross-culturally competent employees, managers and, indeed, organizations.

There is a broad agreement among practitioners and academics alike that for today's international managers, that is, managers (or professionals) whose careers bring them in frequent contact with people from different nationalities, cross-cultural competence and skills are not only desirable, but rather necessary (Chao & Moon, 2005; Ng, Van Dyne, & Ang, 2009). Several studies demonstrated that cross-cultural experiences and cross-cultural competence are either direct predictors or act as mediators of multitude of managerial performance criteria while working overseas or when working extensively with culturally diverse populations. (Earley & Peterson, 2004).

The realization of the importance of effectively managing cross-cultural interactions lead to attempts to describe and assess related competencies in the disciplines of cross-cultural psychology (e.g., Smith & Bond, 1999), cross-cultural communication (e.g., Ting-Toomey, 1999) and, more recently, international management and HRM (e.g., Thomas, 2002). Studies conducted by researchers in these disciplines indicated that certain individual characteristics make some individuals more effective in conducting and managing cross-cultural interactions. For example, certain personality traits, including openness to experience, conscientiousness and self-monitoring were found to predict expatriate managers' effectiveness and adjustment (e.g., Gelfand, Erez & Aycan, 2007).

The acute necessity of having cross-cultural management competencies in the workplace is vividly reflected in the AACSB (Association to Advance Collegiate Schools of Business) accreditation process. In its recent publication *Eligibility Procedures and Accreditation Standards* (July 2009), the AACSB states that “Complex demands on management and accounting education mirror the demands on organizations and managers” (p. 4) and lists four main challenges. Two of these challenges are directly related to CCM: ‘Differences in organizational and cultural values’ and ‘cultural diversity among employees and customers’. Thus, the AACSB explicitly expects that, as part of a qualified program in business, these challenges should be addressed through programmatic elements in undergraduate and graduate business degree programs.

With the expansion in research on the effects of cross-cultural competences on the quality and effectiveness of interactions in culturally diverse situations, it became important to understand how we can improve such competences. While the number and variety of academic and training courses on cross-cultural aspects of management and business grew dramatically, little systematic research exists on the effects of specific academic programs on students’ cross-cultural competence. Our study aims to bridge this gap by empirically investigating the effects of academic educational interventions, namely, graduate university management courses, on students’ cultural competences, operationalized in our study as four Cultural Intelligence (CQ) dimensions.

As Kraiger, Ford, and Salas (1993) pointed out learning outcomes work on a number of different levels in a person but measureable effects can be expected on the following three levels: cognitive, skill-based, and affective. The CQ concept we used helps us to focus on the cultural learning aspects in cognitions and on the skill-level. The pre-post-measurement design of our evaluation of the cultural learning outcomes allows us to reach level 2 of

Kirkpartick (1998) model of evaluation, the Learning Level, on which the acquisition of knowledge, the improvement of skills and the change of attitudes are measured.

In the remaining sections of the introduction we review and describe the CQ concept and its four dimensions and then introduce the concept of *cross-cultural capital* (CCC). We then discuss types of academic courses that aim to increase students' knowledge of cross-cultural issues in management and describe the context and scope of the educational environment where our study took place, offering several hypotheses that are tested in the present study.

THEORETICAL BACKGROUND AND HYPOTHESES

Cultural Intelligence: Nature and Conceptualization

In the last five years, research on cross-cultural competencies reached a higher level of sophistication as the concept of Cultural Intelligence (also known as CQ) gained increased interest among management researchers. Described by Earley and Ang in their 2003 book as well as in Thomas and Inkson's 2004 book, Cultural Intelligence (CQ) is a construct that seeks to integrate several existing concepts and frameworks revolving around person's abilities and skills to effectively manage him/herself and to interact with others in cross cultural situations and environments. We discussed above the importance of cultural competence for individuals working in intercultural and multicultural environments. CQ is a concept that refers to such competences and it has been defined as individual's capabilities to function and manage effectively in culturally diverse settings (Early & Ang, 2003).

Recent developments contributed to both theoretical and empirical progress in this new area as evidenced by a special journal issue dedicated to Cultural Intelligence, or CQ (Earley & Ng, 2006) and by systematic empirical operationalization and validation of the CQ construct (Ang et al., 2007). The CQ is positioned as related, but essentially different from more stable individual differences such as personality traits. Thus, while certain personality

characteristics (e.g., Openness to Experience from the Big Five model) predict CQ levels to some degree (e.g., Ang, Van Dyne, & Koh, 2006), CQ explains variance in cross cultural competence above and beyond stable individual differences.

The concept originates in Sternberg and Detterman's (1986) multiple intelligences framework, which put forward the concept that there are different ways to conceptualize and assess intelligence, beyond the traditional exclusive focus on cognitive elements. Sternberg and colleagues sought to extend the intelligence term to apply to varying 'real world' contexts. CQ is a specific form of intelligence focused on capabilities to grasp, reason and behave effectively in culturally diverse situations (Ang et al., 2007). CQ is a multidimensional construct that follows Sternberg's (1986) framework where he proposed different aspects of intelligence. Three of the four dimensions, metacognition, cognition and motivation, are seen as mental capabilities residing in internal affective and cognitive systems, while the fourth dimension, behavioural capabilities, captures the overt action domain.

According to Earley and Ang (2003), metacognitive CQ focuses on higher-order cognitive processes, those that individuals use to organise and comprehend cultural knowledge. Related capabilities include observing and revising mental models of cultural norms and behaviours. Metacognitive CQ helps individuals be better aware of others' cultural preferences and intentions before and during intercultural interactions. Cognitive CQ focuses on explicit knowledge of values, norms and practices in different cultures including knowledge of social, economic and legal systems in various cultures. Individuals with high cognitive CQ are able to analyse and understand similarities and differences across cultural contexts. Therefore, they can form more accurate expectations and are less likely to make inaccurate interpretations of cultural interactions (Triandis, 1995).

The motivational CQ reflects individual's ability to initiate, maintain and sustain learning and other functional behaviours in culturally unfamiliar or diverse situations. Individuals with higher motivational CQ are capable of coping better, affectively and cognitively, in demanding multicultural conditions. Those with high motivational CQ tend to be inherently interested in learning about and approaching new cultural phenomena and they are likely to be more confident when they find themselves in culturally diverse situations.

The fourth dimension is behavioural CQ, which reflects individual's ability to employ the appropriate verbal and non-verbal actions when interaction with people from difference cultures. Such behaviour includes actions related to tone, gestures, physical space and touching rules, dress codes and practicing appropriate time management norms. Those with high behavioural CQ have a flexible enough repertoire of culturally diverse behaviours and are able to display and change them according to the cultural demands of the situation.

The four CQ dimensions are qualitatively different and each contributes in its own fashion to culturally savvy and competent interaction. While theoretically the four CQ facets are considered as conceptually independent of each other, they tend to be moderately and positively correlated (e.g., Ang et al., 2007). To sum, CQ is an aggregate multidimensional construct where the four dimensions represent different capabilities that combine to make up the overall construct.

In addition to the work of Earley and Ang (2003) that lead to a small but rapidly growing stream of CQ-related studies, Thomas (2006) also proposed a CQ model that has strong similarities to the above described four-dimensional model. Thomas adopts a very similar definition of CQ to that of Earley and Ang (2003), but he conceives CQ as having three dimensions: *Mindfulness*, *Knowledge* and *Behavior*, leaving out the motivational dimension. While knowledge corresponds closely to the cognitive CQ and behaviour is similar in essence to Earley and Ang's behavioural CQ, mindfulness is a related but also

sufficiently different concept from Early and Ang's metacognitive CQ dimension. As presented by Thomas, mindfulness has a deeper grounding in Buddhist concepts and includes senso-motor awareness in addition to cognitive. That is, self-awareness of how one's body reacts in various situations. Lastly, Thomas posited mindfulness as the element linking (or mediating) knowledge and behavioural ability. As such, mindfulness operates by establishing the opportunity to consider a range of behavioural options based on knowing how cultures vary and how they affect behaviour.

It has been only recently that research in the area moved from theorizing about the nature of cultural intelligence and its dimensions to a new phase where systematic attempts to operationalize the construct were followed by designing and testing a measuring instrument that can be utilised for empirical research. Following the conceptual model set by Earley and Ang (2003), Ang et al. (2004) developed and validated a 20-item measure for the four-factor CQ construct. Subsequently, Ang, Van Dyne and Koh (2006) examined the relationship between the four-factor CQ model and personality traits. Conceptually, CQ is an individual capability and it is distinct from stable personality traits. At the same time, certain personality traits are expected to relate to CQ. Ang et al. (2006) demonstrated that the four CQ dimensions had discriminant validity compared to the Big Five personality traits and showed that certain personality characteristics related to specific CQ dimensions. As expected, openness to experience related to all four CQ dimensions. Conceptually, it is argued that both systematic training as well as exposure to cross cultural experiences can develop individuals' CQ. The emphasis in the CQ model (which is reflected in the CQS instrument described below) on assessing ability and not merely capacity and the explicit distinction from personality constructs (which was not always the case with other intercultural competence constructs) makes CQ an especially fitting variable for the purposes of the present study, where we aimed to examine the effects of training and education on cultural competency and

thus sought a relatively malleable individual capability that is sensitive to learning and experience.

Following the development of the CQ conceptual model, Ang et al. (2007) tested and cross-validated the 20-items self-report CQ measure called the *Cultural Intelligence Scale* (CQS) that her team previously developed. Ang and colleagues' findings indicate that the CQS is valid and reliable across samples, time, and countries (Singapore and U.S.). Furthermore, the results of their three studies, conducted across different cultural, educational, and work settings demonstrated that systematic relationships exist between CQ dimensions and specific intercultural effectiveness outcomes. They found that CQ has unique explanatory power in predicting three aspects of intercultural effectiveness (judgement and decision making, cultural adaptation and task performance) beyond and above general mental ability, emotional intelligence, personality, age, sex and several other individual characteristics. These results are especially important in the context of our longitudinal study where we examined the effects of university courses delivered in several countries on the CQ of an international sample of postgraduate students.

Cross-Cultural Capital and its Relationship to CQ

Having described the concept of cultural intelligence, we believe that it is beneficial to consider a related and fairly novel concept, *Cross-Cultural Capital*. Based on previous studies (cf., Ang & Van Dyne, 2008), we position Cross-Cultural Capital (CCC) as a broad concept that encompasses CQ, among other concepts. Below, we hypothesise on the relationship among CQ and other CCC components in the present study. While the term has appeared a handful of times in scholarly literature, it has been used to describe rather varied phenomena in a diversity of disciplines including immigration studies, education and comparative literature. Within management, cross-cultural capital has been used in passing in

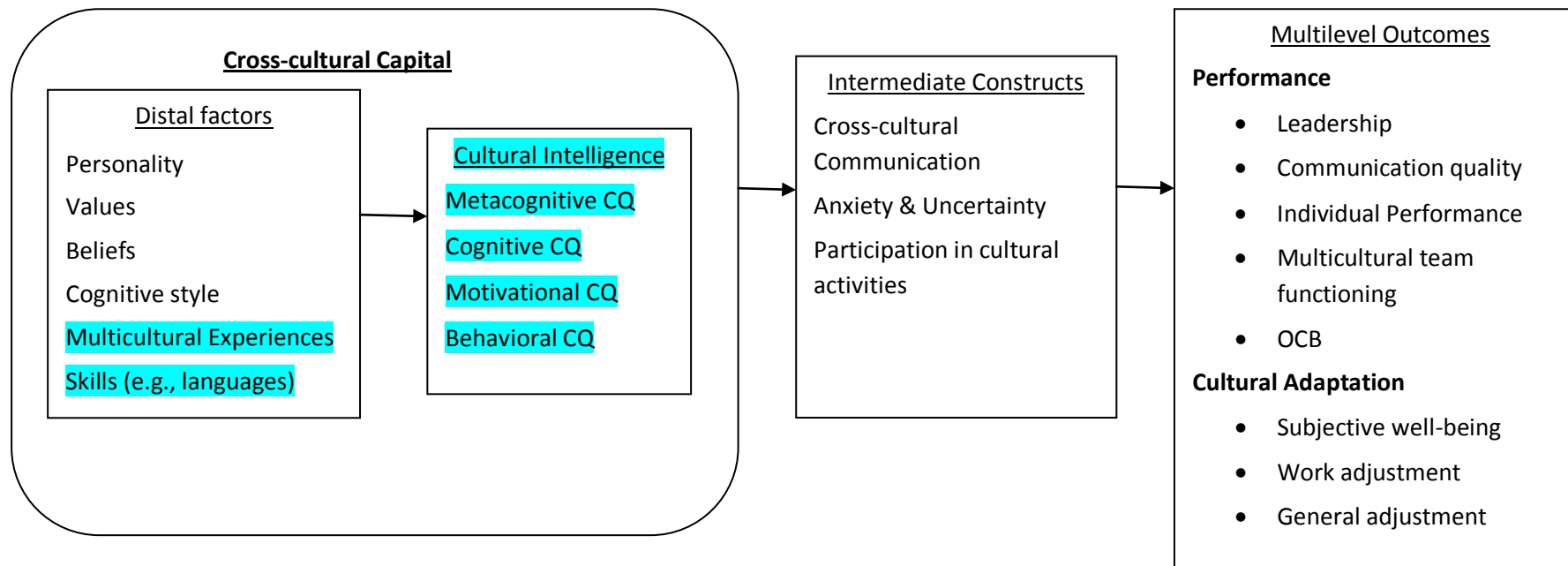
a couple of studies on global virtual teams, being described rather loosely as team-members' awareness of cultural differences (e.g., Paul, Samarah, Seetharaman & Mykty, 2005).

In figure 1, we present a model describing how CQ relates to CCC and other concepts of interest. To that end, we believe that it is advantageous to offer a crisper definition of cross-cultural capital and to describe how CCC fits in the context of cross cultural ability in general and within cross cultural management education in particular.

We view CCC as a specific facet of the rich and broadly encompassing concept of *Human Capital*. Human capital was predominantly championed by the Chicago-school economists and, according to one of its leading authors, it refers to an intangible form of capital that is the result of a variety of investments, predominantly in education and training (Becker, 1975). This *human* form of capital differs from more traditional capital forms since people cannot be separated from their knowledge, skills and values. With the accumulation of theoretical and empirical work that demonstrated the crucial role that human capital plays in improving wealth and performance of individuals, organizations, and indeed national economies the concept became widely utilised in the fields of sociology, economics and organizational studies.

Following from that, we suggest that, within the management and organizational studies disciplines, cross-cultural capital is the aggregate set of knowledge, skills, abilities and psychological dispositions that gives individuals competitive advantage in interacting, working and managing in culturally diverse environments. Our definition emphasizes the evolutionary aspect of this sort of capital: we suggest that individuals rich in cross-cultural capital will potentially adapt better to situations characterized by cultural novelty or diversity.

Figure 1. Characteristics and Consequences of Cross Cultural Capital



Note: adapted from a figure by Ang & Van Dyne (2008, p. 11)
 Highlighted constructs are those that were directly tested as variables in this study

Cross-cultural capital (CCC) is conceived as a broad construct and it is comprised of both dispositional (or, more traitlike) as well experience-based elements (more statelike), including personality dispositions (e.g., openness to experience), values and beliefs (e.g., pro-diversity beliefs), cognitive style (cognitive flexibility) and acquired specific skills (e.g., mastery of several languages) as well as of relevant experiences (e.g., traveling, living and working in different countries; growing up in a multicultural environment).

We also include cultural intelligence as one of the statelike components of cross-cultural capital and our conception of cultural intelligence as a component of CCC corresponds to Ang and Van Dyne's (2008) nomological network of cultural intelligence model. In that model, cultural intelligence is conceptualized as a more of statelike construct that mediates distal factors, which are typified as traitlike (these include personality traits, ethnocentrism and demographics) and intermediate constructs such as communication apprehension and anxiety, which, in turn, are postulated to affect a host of individual and interpersonal outcomes that can be broadly classified into performance and cultural adaptation. Based on the cross-cultural capital concept we developed here and on Ang and Van Dyne's model, we suggest that distal CCC factors contribute to and affect CQ. In the present study we focus on the effects of two such distal factors: number of languages spoken and the experience of living abroad. We argue that both factors positively relate to CQ.

We believe that there are at least three reasons why number of languages spoken would affect students' CQ. First, as much as students had a choice of whether to acquire additional languages, studying more languages would indicate an interest in novel cultural phenomena and, furthermore, possessing the motivation to act on this interest and expand one's cultural knowledge. Secondly, countries (and, sometimes, regions) differ on the norms of how many foreign languages a high school graduate is expected to master before graduating and how intense is their foreign-language training. Thus, beyond individual

choice, it is plausible that national environments that require students to learn several languages in school are characterized by greater cultural heterogeneity compared with countries where the typical norm is to acquire only one foreign language at school. Lastly, research based on sociocognitive perspectives indicates that being multilingual contributes to greater integrative complexity, which is a cognitive precursor of CQ (e.g., Tadmor & Tetlock, 2006). Several past studies indicated that languages spoken relate to cultural skills. For example, Sizoo, Serrie and Shapero (2007) found that the number of languages students spoke had positive (moderate) correlation with their scores on an intercultural sensitivity measure. Consequently, we offer our first hypothesis:

H1: Number of languages spoken will positively relate to CQ at time 1; the relation of languages to CQ at time 2 will be weaker.

The second cross-cultural capital distal factor we examined is experience of living abroad, which we operationalize as the number of countries where students lived in prior to taking the cross-cultural course. We suggest that the experience of living in several countries increases one's cultural knowledge, provides opportunities to develop self-efficacy to manage culturally diverse environments, and makes students feel more at ease in culturally diverse environments.

Several studies suggested and reported that international experience of working and living in a foreign culture has positive impact on various aspects of expatriates cross cultural skills (e.g., Gudykunst & Ting-Toomey, 1998; Mendenhall & Oddou, 1985). Sizoo, Serrie and Shapero (2007) found that years lived abroad predicted students' intercultural sensitivity. Finally, at least one study (Ang et al., 2007) reported that the number of countries an expatriate worked in correlated positively and significantly with all four dimensions of expats' CQ. We therefore pose our second hypothesis:

H2: Number of countries lived in will be positively related to CQ at time 1, but this relation will be weaker with CQ at time 2.

In both hypotheses we suggested that the relationship of the two cross-cultural capital distal variables to CQ will be stronger in time 1 (prior to taking the CCM courses) than in time 2 (measured after courses' completion). We believe that the CCM courses (both the full-term and the 3 days intensive course) increase students' CQ and act as relative 'equalisers' in terms of cultural intelligence. Thus, the predictive value of languages spoken and countries lived for students' CQ in time 2 would have diminished after the course.

Affecting Cross-Cultural Competence through Training and Education

Our literature review indicates that the multidimensional model of cultural intelligence is a fairly new conceptual development that has just recently started to feature in empirical research. In several empirical studies using the CQS, Ang and colleagues (e.g., 2007) found that higher CQ capabilities are positively related to feeling adjusted in situations characterized by cultural diversity. Although some research has been done on the consequences and correlates of CQ, we did not find published studies that empirically tested the effects of situational variables, specifically educational interventions, on CQ. Our study aims to fill the gap that exists in the cultural intelligence research by examining the effects of cross-cultural management education on CQ.

Many private and public sector organizations and, especially, MNCs responded to the growing need in cross-culturally competent workforce by seeking to train their expatriate or sojourner personnel through especially designed training programmes (Earley & Peterson, 2004). At the same time, Business schools around the world responded to these needs by attempting to equip their students with skills and competences that would help graduates act effectively in a multicultural environment once they graduate and enter the workforce. Moreover, following global trends of increased workforce immigration and mobility, greater

numbers of professionals and managers recognize that CCM knowledge and CQ are crucial for high performance in domestic environments. This lead to a proliferation of teaching and educational activities designed to equip students with the necessary cross-cultural competences and, in many business schools programs, there has been rapid growth of CCM courses and modules at both undergraduate and postgraduate levels.

Looking at CCM courses over time, we can discern an ‘evolutionary’ pattern where CCM was initially introduced during a single class or session dedicated to the topic within a curriculum of an International Business course, increasing then to several classes couched within an International Management course and, finally, at the present stage, we see a growing number of core and elective courses focused on both general and more specific CCM themes (e.g., *Doing Business in Asia*). The latter approach can be seen as embedding cross-cultural competencies into the curriculum. Overall, many of these CCM courses or sessions aim not only to increase students’ knowledge of cross-cultural management topics but also to increase their cross cultural understanding in general and to help them become more effective in cross-cultural encounters, especially in their future international management careers. Thus, it is important to find out whether and to what degree does CCM academic training accomplishes some of the hoped-for aims.

Most of the published empirical research on cultural intelligence has, predominantly, looked at the effects or implications of managers’ and members’ CQ for various aspects of social interaction and psychological characteristics. If we accept that some of the CQ dimensions are, at least partially, malleable by learning and experience, an important question to pose is whether academic courses can affect students’ CQ and what is the pattern of these effects. We suggest that, within the context of the present study, postgraduate business courses that are focused on cross-cultural management increase students’ cultural intelligence.

There are several studies that looked at training methods of expatriates and their relative effectiveness (e.g., see meta-analyses by Deshpande & Viswesvaran, 1992; Morris & Robie, 2001). However, very few published studies empirically examine effectiveness or impact of academic interventions on students' cross-cultural skills and abilities. Gannon and Poon (1997) examined the effectiveness of cross-cultural training promoting cultural awareness and whether integrative (including a lecture, video and exercises), video-based and experiential (role-play) approaches would have differing effects on MBA students' cultural awareness. Using a pretest-posttest experimental design, they found that all three training methods had significant positive effects on perceived cultural awareness; however, contrary to their hypothesis, no significant differences were found among the three approaches. It should be noted that the majority of the sample was of US nationals, the training sessions lasted 3 hours and the intercultural awareness measure (10 self-report items) was developed by the authors for the purpose of the study and did not undergo extensive reliability and validity tests.

A more recent study was conducted by Sizoo, Serrie and Shapero (2007), who used a pretest-posttest design with a control group to examine the effects of a combination of in-class and at-home exercises on Intercultural Sensitivity (using Bhawuk and Brislin's 1992 ICSI), which assesses whether people intend to change their behaviour when living in a foreign culture. Participants were undergraduate business students in a US university and were tested before and after taking a semester long course on culture and international business. The relevant control group took an introduction to international business course that did not have the culture-focused activities that were part of the treatment group's course.

Results indicated that while no change occurred on the ICSI scores for the control groups, the treatment group scores were significantly higher after the course. It should be noted that there were three control groups, though only one was demographically and

educationally comparable to the treatment group. The treatment group consisted of mostly US students and the statistical analysis did not involve matched samples.

Thus, only a limited number of published studies tested the effects of international management or business courses on students' cultural skills and competence. While the two studies above indicated that both short educational interventions as well as semester-long courses have significant impact on students' cultural skills, we believe that it would be advantageous to replicate these effects using a more diverse population, a more rigorous design and to do so using a different criterion variable for cultural skills, namely CQ. This leads us to our last hypotheses:

H3a: Cross-cultural Management courses affect CQ, so that students' CQ at time 2 would be higher than their CQ in time 1;

H3b: CCM courses affect more strongly the meta-cognitive and cognitive dimensions of CQ than the motivational and behavioural dimensions.

METHOD STUDY 1

Setting

Study 1 was conducted with postgraduate students who were all enrolled in a Master's in International Management (MIM) program, which is part of a global alliance for management education (referred to as *GAME* in this paper). GAME is a global strategic alliance of 28 leading business schools located in 27 different countries and of 60 corporate members that include some of the world's leading multinationals. In the past several years, this MIM program has been repeatedly ranked among the top programs in the Financial Times' ranking of Masters in Management. As part of the MIM program, students study in at least two different countries. Additionally, upon graduation, all students have to master at least one other European language in addition to English and their mother-tongue. Most of the students come from Europe, but an increasing number comes from other regions. The

core elements of the MIM include an International Strategy course in the first semester, a Cross-cultural Management (CCM) course in the second semester and an internship at the end of the program. Consequently, the classes have a very diverse student population, often with over 10 nationalities represented in any given class. The CCM course is delivered during the second semester in all GAME schools. While the courses differ in their focus and coverage and are taught by different faculty, they all share common themes and are positioned as advanced Master's courses. The courses' content and format are reviewed on an annual basis by the GAME CCM Faculty Group, which includes members from the alliance's different business schools.

Sample and Data Collection

Data was collected by lecturers of the CCM core course in two different times: Time 1 took place at the beginning of the CCM course (typically during the first day) and Time 2 took place at the end of the course (or within two weeks of finishing the course). The duration of classes varied between one and 12 weeks, with the majority taking place over at least eight weeks and accounting for 7-8 ECTS. Students were told about the general nature of the study and were asked to write their name on the study in order to later match the questionnaires. Furthermore, they were informed that their responses would only be reported in the aggregate so anonymity would be assured. Participation was voluntary and did not carry any academic credit. The survey took approximately 10-15 minutes to complete.

Participants were 230 graduate students who took the course "cross-cultural management" from six partner universities of the GAME network during the 2008-09 academic year. The sample included students belonging to over 15 universities, who took CCM classes in large universities and business schools in the following countries: Ireland 60 (12), Spain 50 (42), Finland 13 (13), UK 46 (46), Poland 20 (20), and Austria 41 (17). The numbers represent the sub-samples total and matching N (t1 and t2). Given the longitudinal

nature of the study design and students dropping out of or missing classes, calculating a precise response rate of all matched questionnaires was not feasible. The total N of the matched sample, 150, represents over 65% of the total sample.

Measures

Cultural intelligence: Ang et al. (2008) CQS questionnaire was used to measure students' cultural intelligence. We chose this instrument for several reasons: First, it gives a holistic measure of CQ while also producing four components, namely a metacognitive and cognitive facet, a motivational facet, and a behavioural facet. Albeit the concept of CQ reaches back to the 1950s (Ferguson, 1956), attempts to capture CQ in an international business context self-report surveys are relatively novel. Furthermore, Ang et al. 20 item scale shows high construct validity with Cronbach's alphas ranging around 0.8. Finally, as mentioned above, the CQS is well suited for our data collection design and, importantly, the four dimensions of CQ measured correspond to our conceptual interests.

Demographic variables: Consistent with previous research linking cultural intelligence to demographic variables (e.g. Earley & Ng, 2006), we asked each respondent to report their gender, age, nationality, languages spoken and the number of countries lived and educated in (for six months or more).

RESULTS STUDY 1

Means, standard deviations, correlations and reliabilities of the study variables are reported in Table 1. The average age of the 229 students who participated in the study was 23.63 (sd: 2.27) and 36% of the sample were male. The students had lived, on average, in three different countries for a period of at least six months in each (mean: 2.91, sd: 1.24) at the start of CCM course. The students spoke, on average, three different languages at a proficient level (mean: 3.03, sd: 0.89).

INSERT TABLE 1 ABOUT HERE

We have proposed two factors that predict the students' initial CQ scores (CQ at T1). The multiple regression analyses results for CQ at T1 are presented in Table 2. Hypothesis 1 stated that the number of languages spoken would positively relate to CQ at T1, but the relation of languages to CQ at T2 would be weaker. A positive and significant relationship is found between the number of languages spoken and CQ at T1 ($\beta = .16$, $p < .05$, Table 2). This indicates that students who speak more foreign languages at a proficient level tend to have higher levels of Overall CQ at T1. As we can see from Table 2, this positive and significant effect on Overall CQ comes mainly from the effects on the cognitive and motivational dimensions of CQ. The relation of languages to CQ at T2, however, is not significant ($\beta = -.13$, $p = .13$, full results are not shown but available from the authors upon request), thus Hypothesis 1 is supported.

Hypothesis 2 proposed that prior cultural experience would be positively related to CQ T1, but this relation would be weaker with CQ scores measured at the end of the course (CQ T2). The results show that prior cultural experience, measured by the number of countries lived in before joining the CCM course, is positively and significantly related to Overall CQ at T1 ($\beta = .28$, $p = .0001$), but is not associated with Overall CQ at T2 ($\beta = .08$, $p = .39$ (full results are available from the authors)). This indicates that students who had more experience living abroad before joining the CCM course tended to have higher level of CQ (CQ at T1). This positive and significant association is found across four dimensions of CQ in Table 2. This prior foreign experience, however, is not related to CQ at T2 and these non-significant results are consistently found across the four dimensions of CQ (figures available from the authors). Thus the Hypothesis 2 was supported.

INSERT TABLE 2 AND 3 ABOUT HERE

Hypothesis 3a proposed that CCM courses would affect CQ, so that students' CQ at T2 will be higher than their CQ at T1. Table 3 shows the summary results of paired samples

t-tests. In addition to the significance levels of t-test between T2 and T1 measures, we also report effect sizes. The effect size measures we used in our study are the standardized mean differences for two correlated groups recommended by Algina et al. (2005). The difference between the mean score of CQ at T2 and that of CQ at T1 is positive and significant ($t=4.48$, $p=.0001$, $d=.29$), giving substantial support for Hypothesis 3a. Similarly, our Hypothesis 3b specifies that the improvement of CQ from T1 to T2 would be greater for the cognitive dimensions of CQ than the motivational and behavioural dimensions of CQ. As shown in Table 3, the t values and the effect size (as measured with Cohen's d) for the cognitive dimensions (Metacognitive CQ: 4.39 , $p = .0001$, $d=.35$); Cognitive CQ: 3.01 , $p = .003$, $d=.43$) tend to be bigger than the motivational CQ (2.93 , $p=.004$, $d=.24$) and behavioural CQ (1.71 , $p=.089$, $d=.15$), therefore Hypothesis 3b is supported.

METHOD STUDY 2

We designed study 2 to triangulate findings from study 1. The participants in study 1 were drawn from a uniquely-designed international management masters program, which is characterized by multitude of nationalities, requirement (upon graduation) to master three languages, high selectivity and, overall, relatively high student motivation to enter the program. In contrast, study 2 was conducted in a single location at large research university in Austria. Study 2 is based on a very different student population, which is much less selected, is much more culturally homogenous (comprised of mainly Austrian students), and one that has less prior international experience.

Also, the nature of the course differs from the GAME-CCM courses in two main aspects: First, as the course title "Intercultural Training" indicates, this is a less theoretically-driven course than its GAME CCM counterpart and focuses on preparing students effectively for coping with cultural challenges during their study abroad semester(s). Second, the course is about half to two-thirds in terms of intensity and credit hours compared to the GAME

CCM courses and is usually taught in a block period of two and a half days. We used the same measures and data collection procedures as in Study 1, but given that the length of the course in study 2 was considerably shorter there was less time for students to reflect on potential learning than in study 1. The final replication sample consists of 326 matching respondents (t1 and t2), which equals a response rate of 90 %.

RESULTS STUDY 2

The 326 respondents are predominantly Austrian students, with an average age of 22.81 (sd: 2.17) and 59% males. The average number of countries that the students had lived prior to taking the course is 1.94 (compared to 2.91 for the study 1 sample). The average number of languages the students speak at a proficient level was 2.74 (sd: 0.95). The means, standard deviations, correlations and reliabilities are shown in Table 4.

INSERT TABLE 4 ABOUT HERE

The main results are presented in Table 5 and Table 6. As shown in Table 5, the number of countries lived in is positively and significantly associated with Overall CQ at T1 ($\beta = .26, p < .001$) as well as with four separate dimensions of CQ. No association was found with CQ at T2 (figures available from the authors). Thus, our Hypothesis 2 is supported. Our Hypothesis 1, however, is not supported in Study 2 as the number of languages spoken was not associated with CQ at T1.

INSERT TABLE 5 AND TABLE 6 ABOUT HERE

Our Hypothesis 3a is supported as shown in Table 6. The difference in mean Overall CQ between T2 and T1 is positive and significant ($t = 4.33, p = .0001, d = .28$). The improvement of CQ from T1 to T2 is sizeable for metacognitive CQ ($t = 6.54, p = .000, d = .43$) and cognitive CQ ($t = 6.53, p = .000, d = .43$). The motivational dimension and behavioural dimension of CQ, however, were not significantly improved. Motivation CQ in T2 in fact

slightly decreased ($t = -3.64$, $p = .0001$, $d = -.21$) while behavioural CQ did not change. This provides support for our Hypothesis 3b.

DISCUSSION

As the results of our analysis indicate, all hypotheses are supported in study 1 and most of them are also supported in study 2. The results of study 1 match the expectations of the literature review and indicate that two aspects of distal cross-cultural capital, namely the number of languages spoken (H1) and prior experience of living in foreign cultures (H2) are significantly and positively related to CQ at T1. These two factors were also found as predictors for successful expatriate adjustment in a meta-analysis study on the determinants of international adjustment of expatriates by Bhaskar-Shrinivas et al. (2005).

The results of Study 1 support the argument by Shaffer and Miller (2008) that language ability and previous foreign experience can be linked to CQ. Interestingly, language was not significantly related to CQ at T1 or T2 in study 2. While students in study 1 are required to be proficient in at least two languages, students in study 2 do not face such requirements. As can be seen from Table 1 and 3, study 2 students have lower foreign language proficiency and also vary more in their language skills compared to study 1 participants. We suggest that this explains, at least partially, the lack of correlation with CQ. It may indeed be the case that active use of a second or third language during a foreign experience triggers higher CQ values.

Foreign experience (living abroad) has a positive and highly significant effect on CQ and all its sub-dimensions in both of our samples. Since the GAME program requires students to study abroad for at least one semester, some foreign experience is also catered for within the program and we can assume that the program itself has an impact on the CQ-level of the GAME alumni.

As also predicted in H1 and H2, the impact of language and prior international experience on CQ diminishes following the course. Our data shows that the relation of language ability and previous cultural experience with CQ is not significant anymore after the course (at T2). Thomas and Inkson (2003) stress the fact that language skills are not necessarily sufficient for successful negotiations. They point out that the knowledge of “culturally based codes and conventions of language” (Thomas & Inkson, 2003, 120) is needed to reach the high level of CQ which allows successful negotiations across cultures. We can therefore expect that a study program stressing language skills and their successful application abroad should improve that knowledge and increase the CQ of its participants.

Further support to the logic behind our Hypotheses 1 and 2, stating that we expect smaller (or no) relationship between distal cross-cultural capital factors and CQ at T2 comes from examining the SD results in T1 versus T2. Remarkably, for both studies, students’ standard deviances (SD) of CQ scores on all four dimensions were lower in Time 2 than in Time 1. We argue that these results suggest a conversion pattern in students’ CQ following the CQ course.

Our H3a that stated that a higher CQ at the end of the CCM course in comparison to the level at prior to the course has been strongly supported in both studies. There are two main potential explanations for the increase in CQ:

- 1) The exposure to cultural course content, the work on intercultural case studies and the participation in cultural simulations in the CCM classes.
- 2) Many of the students in the GAME CCM classes and some of the students in study 2 were studying at that point outside their home country, during an international exchange term. This experience of living abroad and interacting with culturally diverse student population is likely to contribute to the increase in CQ.

While the can effects of factors external to the CCM courses on CQ at time 2 cannot be ruled out, we believe that the pattern of results of our two studies justifies the claim that the CCM courses played a crucial, if maybe not exclusive, role in this change in cultural intelligence. First, as hypothesized in H3b, our data shows a stronger effect on the two cognitive dimensions of CQ than on the motivational and behavioural dimensions for both samples. In fact, the changes on the behavioural dimension were not significant. This pattern confirms our conceptual argument that changes stemming from an academic CCM course have more effect on cognitive elements of CQ than on the non-cognitive elements.

Secondly, while the threat of intervening contextual factors (i.e., various cultural experiences by students between time 1 and time 2) is relatively high in study 1, it is much less of a threat in study 2 given that the time that elapsed between T1 and T2 is less than a week. While effects of non-course related factors are possible during such a short period, they are much less impactful than effects incurred during a period of several months. That H3a and H3b were supported also in study 2, gives a much stronger credibility to our argument that CCM courses impact the metacognitive and cognitive dimensions of CQ.

At the same time, it is also interesting to discuss the differences in results between our two studies. Examining the effects sizes, we see that the shorter but more intensive academic course of study 2 resulted in a larger change in metacognitive and cognitive CQ, as indicated by moderate size effect size of .43 than in the overall sample of study 2 (small effect sizes of .21-.28). However, while study 1 showed a significant and marginally significant improvement in students' motivational and behavioural CQ dimensions (effect sizes of .24 and .15, respectively), students in study 2 had no change on behavioural CQ and a detrimental small but significant effect (effect size of -.21) on their motivational CQ.

One explanation for the stronger change on the cognitive dimensions by participants of study 2 is that study 1 students are already at a graduate level and have had more academic

and international experience than their peers in study 2 and therefore had relatively less to gain from the academic experience. The more immediate and focused impact of the content of intercultural courses is also backed up by a study evaluating the effects of intercultural training courses conducted in a comparable major university (Brück, 2007). The same test format (before and after the course) showed very similar results on the self-assessment of the Austrian students: the biggest changes after the course were perceived on cognitive level (*“knowledge on target culture”* and *“awareness of the effects of cultural differences”*) whereas changes on the behavioural and affective levels were much lower.

Since cognitive aspects play a central and synergistic role in the overall construct of CQ (Early & Ang, 2003; Thomas & Inkson, 2003), we can conclude that the found increase in the two cognitive dimensions indicates also an overall positive effect on the development of CQ through cross-cultural management education. Thomas (2006) mentioned the influence of cultural knowledge on the perception and the flow of cultural information. The increase in cognitive aspects of CQ of students in both our samples can therefore be seen as a gateway to a further positive development of the overall CQ.

At the same time, the relatively smaller effects we found on motivational and behavioural CQ, suggests that these two latter dimensions are less readily affected by typical class-based academic interventions. Taking this conclusion further and following recent literature linking intercultural competences with experiential learning (notably Ng et al., 2009 and Yamazaki & Kayes), we suggest that it is plausible that motivational and behavioural CQ aspects would be more affected by more direct experiential experiences and especially by a direct interaction with ‘foreign’ cultures. It is likely that longer and more extensive exposures to diverse cultures (within or across national boundaries) would have stronger effects on motivational and behavioural aspects of cultural intelligence. There is lack of studies in this area, but our findings that the number of countries lived had a positive and significant effect on

motivational and behavioural CQ in both samples loans indirect support to this notion (see also Crowne, 2008 who found a similar pattern examining US university students' CQ). At the same time, as Ng et al. (2009) point out, such experience effects are not automatic and are likely to be moderated by the extent that effective experiential learning actually takes place.

Contrary to the results of study 1, we found in study 2 that motivational CQ was significantly higher in T1 than in T2. This would indicate that the student's "drive to learn more about and function effectively in culturally varied situation" (Ward & Fischer, 2008, p. 160) was lower at the end of the course than before. To understand this we have to look at the general layout of the courses and the differences in the learning environment in study 1 and 2. Whereas the students in study 1 took part in a cross-cultural management course as part of an international management program that they have already selected, were accepted to and participated in for a semester, the courses in study 2 were designed as a cultural preparation courses with the main goal to prepare students for a term abroad following the semester of the course. The course aimed at giving a realistic preview of the semester abroad to a student population who largely did not have such prior experience. We suggest that the detrimental effects on motivation were due to students getting a more realistic view of the challenges involved in living in a foreign place with a foreign culture. After they received a lot of culturally-specific input on their target cultures they may have considered themselves as "culturally-prepared".

At the same time, they studied in a culturally-homogenous group with fellow Austrians in a course conducted in their native language in their home country. In study 1, most students spent several months studying in a foreign environment and with fellow students coming from a host of different nationalities. Upon successfully completing such an academic and cultural experience, their self-efficacy for managing intercultural interactions became higher.

To conclude, our study shows that academic interventions in the form of cross-cultural management courses can effectively affect students CQ and, as much as these students are going to assume professional and managerial positions in a multicultural organizational environment, we suggest that such courses in particular and programs like the GAME MIM in general, constitute effective and worthy investment in improving the cultural competences of the future workforce.

In addition to these practical implications, our study had meaningful contributions to the research literature in the young field of cultural intelligence. First, it is the first study to systematically and empirically address the question of how academic educational interventions affect cultural intelligence. Not only did we demonstrate that CCM courses affect CQ, we also hypothesized and demonstrated the relative differences in their effects on the four CQ dimensions. Furthermore, we have introduced and defined, virtually for the first time, the concept of cross-cultural capital, theorized about its relation to CQ and tested two hypotheses on these relations. We believe that cross-cultural capital will prove a useful conceptual umbrella-construct in future studies on cultural competences. For further studies we plan to include an evaluation of the application of the learning on the behavioural level (Kirkpatrick, 1998) in order to evaluate if the students are able to use the knowledge and skills acquired in the courses.

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Means, Standard Deviations, Correlations, and Reliabilities: Study 1

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Age	23.63	2.27	-													
2 Sex (1:male, 2:female)	1.64	0.48	-.06	-												
3 No. of countries lived in	2.91	1.24	.06	-.15	-											
4 No. of languages spoken	3.03	0.89	-.14	.00	.33	-										
5 CQ at T1	4.92	0.70	.01	.01	.25	.26	(.87)									
6 MC at T1	5.24	0.82	.09	.02	.24	.10	.69	(.71)								
7 COG at T1	4.23	1.03	-.06	-.04	.18	.28	.79	.39	(.83)							
8 MOT at T1	5.64	0.83	.00	.00	.12	.18	.72	.38	.43	(.75)						
9 BEH at T1	4.79	1.05	.01	.04	.19	.14	.73	.43	.34	.35	(.77)					
10 CQ at T2	5.12	0.67	.05	.11	-.05	-.06	.56	.40	.34	.46	.48	(.89)				
11 MC at T2	5.48	0.81	.02	.11	-.02	-.16	.33	.29	.17	.23	.33	.78	(.79)			
12 COG at T2	4.48	0.90	-.04	.13	-.13	.07	.49	.19	.41	.33	.45	.79	.50	(.80)		
13 MOT at T2	5.76	0.80	-.03	.05	.05	-.04	.40	.33	.20	.47	.26	.72	.45	.44	(.76)	
14 BEH at T2	4.98	0.94	.20	.07	-.01	-.11	.45	.43	.20	.36	.42	.79	.61	.41	.41	(.78)

Note. Correlations equal to or stronger than .12 are significant at $p < .05$; Figures on main diagonal are Cronbach's alpha reliabilities. CQ: Cultural Intelligence;

MC : Metacognitive CQ; COG: Cognitive CQ; MOT: Motivational CQ; BEH: Behavioral CQ; T1: Time 1; T2: Time 2

TABLE 2

Regression Results: Study 1

Predictors	<u>Dependent Variables</u>				
	Overall CQ	Metacognitive CQ	Cognitive CQ	Motivational CQ	Behavioral CQ
<u>Step1</u>					
Age	-.03	.07	-.05	-.07	-.01
Sex (1: male, 2: female)	-.02	.06	-.02	-.13*	.05
University Dummy1	-.21*	-.15	-.10	-.57***	.11
University Dummy2	.08	-.00	.09	.01	.10
University Dummy3	.00	-.01	-.07	-.09	.16
University Dummy4	.00	.01	.08	-.07	-.05
University Dummy5	.07	-.03	.06	-.00	.13
<u>Step 2</u>					
No. of countries lived in	.28***	.26***	.17*	.21**	.23**
No. of languages spoken	.16*	.02	.22**	.17*	.02
<i>df</i>	9, 196	9, 196	9, 196	9, 196	9, 196
<i>R</i> ²	.15	.08	.13	.31	.09
ΔR^2	.11***	.06+	.08***	.08***	.05**
<i>F</i>	3.71***	1.91+	3.32***	9.67***	2.09**

Note. Coefficients are the standardized beta obtained from the final regression equation with all variables entered. *** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .10$.

TABLE 3**Paired Samples t-test: Study 1**

	<u>Paired Differences</u>			
	Mean	SD	t	Significance (effect size*)
CQ at T2 – CQ at T1	0.23	0.63	4.48	.000 (.35)
MC at T2 – MC at T1	0.33	0.93	4.39	.000 (.43)
COG at T2 – COG at T1	0.26	1.04	3.01	.003 (.26)
MOT at T2 – MOT at T1	0.19	0.80	2.93	.004 (.24)
BEH at T2 – BEH at T1	0.14	0.10	1.71	.089 (.15)

Note. CQ: Cultural Intelligence; MC: Metacognitive CQ; COG: Cognitive CQ; MOT: Motivational CQ; BEH: Behavioural CQ; T1: Time 1; T2: Time 2. * the standardized mean difference estimates for two correlated groups

TABLE 4**Means, Standard Deviations, Correlations, and Reliabilities: Study 2**

Variables	Mean	SD	1	2	3	4	5	6	7	8
1 Age	22.81	2.17	-							
2 Sex(1:male, 2:female)	1.41	0.50	-.19	-						
3 No. of countries lived in	1.94	1.29	.17	.02	-					
4 No. of languages spoken	2.74	0.95	.02	.11	.25	-				
5 CQ at T1	4.83	0.68	.13	-.01	.26	.04	(.87)			
6 MC at T1	4.72	0.95	.14	.03	.18	.06	.69	(.78)		
7 COG at T1	4.18	0.92	.10	-.01	.20	.08	.75	.37	(.78)	
8 MOT at T1	5.71	0.84	-.01	-.01	.20	-.01	.73	.38	.43	(.80)
9 BEH at T1	4.81	1.03	.12	-.02	.14	-.04	.71	.38	.28	.56
10 CQ at T2	5.01	0.66	.04	.07	.06	.08	.43	.33	.30	.32
11 MC at T2	5.11	0.88	-.01	.10	.01	.03	.34	.38	.16	.20
12 COG at T2	4.56	0.85	.09	.00	.02	.08	.28	.18	.39	.16
13 MOT at T2	5.56	0.81	-.05	.10	.13	.06	.41	.19	.25	.53
14 BEH at T2	4.93	0.95	.06	.04	.02	.04	.27	.27	.07	.11

Note. Correlations equal to or stronger than .12 are significant at $p < .05$; Figures on main diagonal are

Cronbach's alpha reliabilities. CQ: Cultural Intelligence; MC: Metacognitive CQ; COG: Cognitive

CQ; MOT: Motivational CQ; BEH: Behavioral CQ; T1: Time 1; T2: Time 2

TABLE 5
Regression Results for CQ at T1: Study 2

Predictors	<u>Dependent Variables</u>				
	Overall CQ	Metacognitive CQ	Cognitive CQ	Motivational CQ	Behavioral CQ
<u>Step1</u>					
Age	.10	.13*	.07	-.04	.10
Sex (1: male, 2: female)	-.01	-.05	-.00	.01	-.01
<u>Step 2</u>					
No. of countries lived in	.26***	.17**	.17**	.24***	.16**
No. of languages spoken	.04	.01	.03	-.07	-.09
<i>df</i>	4, 313	4, 317	4, 316	4, 315	4, 314
<i>R</i> ²	.08	.05	.04	.05	.04
ΔR^2	.06	.03	.03	.05	.02
<i>F</i>	6.64***	4.45**	3.51**	4.33**	3.24*

Note. Coefficients are the standardized beta obtained from the final regression equation with all variables entered. *** $p < .001$, ** $p < .01$, * $p < .05$.

TABLE 6**Paired Samples t-test: Study 2**

<u>Paired Differences</u>				
	Mean	SD	t	Significance (effect size)
CQ at T2 – CQ at T1	0.19	0.71	4.33	.000 (.28)
MC at T2 – MC at T1	0.40	1.04	6.54	.000 (.43)
COG at T2 – COG at T1	0.38	0.97	6.53	.000 (.43)
MOT at T2 – MOT at T1	-0.17	0.79	-3.64	.000 (-.21)
BEH at T2 – BEH at T1	0.11	1.13	1.58	.116 (.11)

Note. CQ: Cultural Intelligence; MC: Metacognitive CQ; COG: Cognitive CQ; MOT: Motivational CQ; BEH: Behavioral CQ; T1: Time 1; T2: Time 2. * the standardized mean difference estimates for two correlated groups

APPENDIX I

The Cultural Intelligence Scale (CQS)

Read each statement and select the response that best describes your capabilities.

Select the answer that BEST describes you AS YOU REALLY ARE (1 = strongly disagree; 7 = strongly agree)

<i>CQ factor</i>	<i>Questionnaire items</i>
------------------	----------------------------

Metacognitive CQ

MC1 I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.

MC2 I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.

MC3 I am conscious of the cultural knowledge I apply to cross-cultural interactions.

MC4 I check the accuracy of my cultural knowledge as I interact with people from different cultures.

Cognitive CQ

COG1 I know the legal and economic systems of other cultures.

COG2 I know the rules (e.g., vocabulary, grammar) of other languages.

COG3 I know the cultural values and religious beliefs of other cultures.

COG4 I know the marriage systems of other cultures.

COG5 I know the arts and crafts of other cultures.

COG6 I know the rules for expressing nonverbal behaviors in other cultures.

Motivational CQ

MOT1 I enjoy interacting with people from different cultures.

MOT2 I am confident that I can socialize with locals in a culture that is unfamiliar to me.

MOT3 I am sure I can deal with the stresses of adjusting to a culture that is new to me.

MOT4 I enjoy living in cultures that are unfamiliar to me.

MOT5 I am confident that I can get accustomed to the shopping conditions in a different culture.

Behavioral CQ

BEH1 I change my verbal behavior (e.g., accent, tone) when a cross-cultural interaction requires it.

BEH2 I use pause and silence differently to suit different cross-cultural situations.

BEH3 I vary the rate of my speaking when a cross-cultural situation requires it.

BEH4 I change my nonverbal behavior when a cross-cultural situation requires it.

BEH5 I alter my facial expressions when a cross-cultural interaction requires it.

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