

**EXAMINING THE EFFECTS OF AN ON-CAMPUS CULTURAL  
TRAINING COURSE COMBINED WITH FACULTY-LED, SHORT-TERM  
STUDY ABROAD EXPERIENCES ON UNDERGRADUATE STUDENTS’  
CULTURAL INTELLIGENCE**

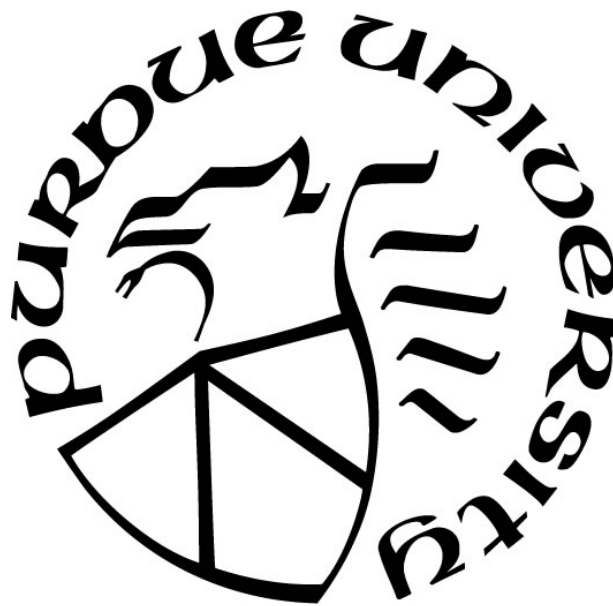
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*To Jamie, my BFF and PIC – LOL.*

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## **GLOSSARY**

Cultural Intelligence (CQ): ability to relate with and work effectively with people across cultures.

Motivation CQ: intrinsic and extrinsic motivation, and self-efficacy during intercultural interactions.

Cognitive CQ: understanding of cultural similarities and differences in regard to knowledge of business, values and norms, sociolinguistics and leadership.

Metacognitive CQ: ability to plan for and adapt behavior during intercultural encounters through self- and other-awareness and checking assumption.

Behavior CQ: capability to execute intended actions, including speech acts, verbal and nonverbal communication.

Social Learning Theory: SLT integrates behavior and cognitive theories of learning into a comprehensive theory that explains how individuals learn new social behaviors by observing, retaining and reproducing them.

## ABSTRACT

As globalization continues to increase, the demand for culturally intelligent employees is central for navigating everyday intercultural business interactions. For college students preparing to enter the workforce, cultural intelligence is trained at universities through cultural training courses and study abroad experiences. Although cultural training courses and study abroad experiences are recognized as important factors in developing cultural intelligence, their effects are often assumed. Additionally, research indicates that international travel alone does not enhance a person's overall cultural intelligence. This research examined a university program designed using Bandura's Social Learning Theory to increase undergraduate students' cultural intelligence through an on-campus cultural training course followed by a study abroad experience. Study 1 compared the effectiveness of a university program consisting of a cultural training course with a study abroad experience against a comparison control group. Multi-level modeling analyses suggest that students who participated in the cultural training course followed by a study abroad experience significantly increase in motivation, cognitive, metacognitive, and behavior CQ. Furthermore, interaction analyses examined the relationship between the two study groups, students' self-assigned cultural development goals, the quality of their reflective journal entries, and an examination of any potential cultural mentor effects. None of these variables was associated with CQ growth. Study 2 compared two study abroad groups who either spent 3- or 6-weeks abroad after completing a shared cultural training course. Both groups experienced a statistically significant increase in all four CQ domains relative to a comparison group. When comparing the 3- and 6-week study abroad groups, there were no differences in motivation, cognitive, or behavior CQ; however, in metacognitive CQ, the 3-week group experienced a statistically significant increase compared to the 6-week group. No student-level predictors (age, gender identity, ethnicity, year in school, previous overseas experience, and grade point average) or program-level predictors (cultural mentor, number of countries visited) had a significant relationship with CQ development. These results demonstrate that a university intercultural development program that combines a cultural development training course with an instructor-led study abroad experience can help students improve their cultural intelligence, regardless of a student's background, and that students can experience significant CQ growth in as little as 3-week abroad.

# **CHAPTER 1: BACKGROUND**

## **Introduction**

In recent years, technological advancements in connectivity have been instrumental to the speed of globalization. As globalization has increased, the number of employees needing to interact internationally, either in person or online, has grown. Navigating these cultural interactions requires individuals who have Cultural Intelligence (CQ). Accordingly, to help students succeed personally and professionally, universities should measure students' CQ and investigate ways to improve it. A recent survey highlights that these international interactions often end poorly in the workplace, with nearly 40% of the companies surveyed reporting that they missed out on international business opportunities because their employees lacked cultural competence skills (Daniel et al., 2014). Employees who lack cultural competence may not have enough country-specific cultural knowledge or lack an appreciation for cross-cultural differences in local markets and business practices necessary to interact effectively (Daniel et al., 2014). University researchers have employed cultural training courses and study abroad experiences as two approaches to help college students develop their CQ (Fang et al., 2018; Liao & Thomas, 2020; Michailova & Ott, 2018).

For college students, developing CQ is vital because it has many direct benefits to workplace interactions. For example, people with higher CQ have lower ethnocentrism levels (Young et al., 2017) and are better prepared to recognize and adjust their behavior in cross-cultural situations (Guðmundsdóttir, 2015; Presbitero, 2017; Young et al., 2017) found in the workplace. CQ is associated with task (Presbitero, 2017) and work (Wang, 2016) performance as well as innovativeness (Lorenz et al., 2018). Additionally, those with higher CQ are more willing to share knowledge with co-workers (Collins et al., 2015) and are more likely to emerge as workplace leaders (Lisak & Erez, 2015). Individuals with higher CQ scores can enter unfamiliar environments, interpret any new environmental cues, and adapt their behavior to work effectively with members of the new cultural environment (Presbitero, 2017; Shu et al., 2017). Furthermore, individuals with higher CQ scores understand that cultural misunderstandings will occur, and consequently, they delay judgment until they can comprehend the situation more fully (Brislin et al., 2006).

Cultural training programs are associated with increasing individuals' CQ (Fang et al., 2018; Liao & Thomas, 2020; Ott & Michailova, 2018). Cultural training programs have been examined in various organizations of all sizes (Presbitero & Toledano, 2017; Reichard et al., 2013; Reichard et al., 2015). These programs vary from a brief 2-hour lecture (Reichard et al., 2013) to extensive experiential training projects lasting several months (Presbitero & Toledano, 2017). In nearly all cases, the cultural training programs effectively increased participants' CQ in at least one or more domains (MacNab et al., 2012; Presbitero & Toledano, 2017; Rehg et al., 2012; Reichard et al., 2013; Reichard et al., 2015). For example, a recent study by Presbitero and Toledano (2017) analyzed the effects of a cultural training program on the CQ development of an information technology company's global team members. The researchers assessed participants' CQ before and after a 6-month program. The program met once a month for 6 hours each session. Results demonstrated that CQ improved significantly following the cultural training program. Across the company, this increase in CQ moderated post-training individual-level task performance.

International experiences are also associated with increasing individuals' CQ (Fang et al., 2018; Liao & Thomas, 2020; Ott & Michailova, 2018). Previous research on CQ development examined the effects of various forms of international experiences, including expatriates working internationally (Moon et al., 2013), military personnel stationed abroad (Mosakowski et al., 2013), and university students studying abroad (Chao et al., 2017; Crowne, 2013; Matsumoto et al., 2008; McRae et al., 2016; Wood & St. Peters, 2013). These programs vary from a few days (Engle & Crowne, 2013; McRae et al., 2016; Wood & St. Peters, 2013) to months (Chao et al., 2017; McRae et al., 2016; Norah McRae et al., 2016; Varela & Gatlin-Watts, 2014) in duration. A recent review of the literature on international experiences concluded that the evidence supports a positive relationship between past international experience and current CQ (Liao & Thomas, 2020). Previous studies have focused primarily on examining the duration and frequency of time spent abroad as potential predictors of CQ. Still, there lacks a sufficient body of empirical research on factors that may impact CQ, which also adequately applies theory to explain the association between their instruction and CQ development. Uncovering these factors is essential because people do not improve their CQ through intercultural experience alone (Li et al., 2013; Varela & Gatlin-Watts, 2014).

As trainers of tomorrow's global workforce, universities strive to help students learn to interact in multicultural environments effectively (Meacham & Gaff, 2006; NAFSA, 2005). Colleges and universities develop and investigate ways for their students to gain a competitive advantage when entering the global workforce through programs designed to increase a student's CQ (Alexandra, 2018; Buchtel, 2014; Bückner & Korzilius, 2015; Eisenberg et al., 2013; Fischer, 2011; MacNab et al., 2012; Ramsey & Lorenz, 2016; Rosenblatt et al., 2013; Varela & Gatlin-Watts, 2014). Primarily, university efforts to help students develop their CQ have used either cultural training or study abroad programs (Fang et al., 2018; Ott & Michailova, 2018). Evidence suggests that university cultural training programs are effective at increasing a student's cultural awareness, sensitivity, and knowledge (DeLoach et al., 2015; Kurt et al., 2013; Loh et al., 2011; Miller & Gonzales, 2010; Rexeisen, 2012; Sample, 2013; Vande Berg et al., 2009; Varela & Gatlin-Watts, 2014). Yet, research has not focused on specific CQ skills acquisition. Currently, only a handful of studies have examined the effect of cultural training courses on students' CQ (Alexandra, 2018; Buchtel, 2014; Bückner & Korzilius, 2015; Eisenberg et al., 2013; Erez et al., 2013; Fischer, 2011; MacNab et al., 2012; MacNab & Worthley, 2012; Rosenblatt et al., 2013).

Initial research on university cultural training courses shows promise for improving students' CQ through the use of traditional lectures (Buchtel, 2014; Eisenberg et al., 2013; Ramsey & Lorenz, 2016) and as experiential learning projects (Alexandra, 2018; Erez et al., 2013; Ko et al., 2013; MacNab et al., 2012; Rosenblatt et al., 2013; Taras et al., 2013) or a combination of these formats (Bückner & Korzilius, 2015; Fischer, 2011). Of the 12 studies that use cultural training courses, half report an overall improvement in CQ (Alexandra, 2018; Bückner & Korzilius, 2015; Eisenberg et al., 2013; MacNab et al., 2012; Ramsey & Lorenz, 2016; Taras et al., 2013). Of the studies that report changes in CQ, improvement in metacognitive CQ occurred most often (5 out of 12), followed by motivation CQ (3 out of 12), cognitive CQ (3 out of 12), and finally, behavior CQ (2 out of 12). Yet, there are limitations to how well we can draw conclusions based on the results. Of the 12 studies, only four studies used a control or comparison group (Buchtel, 2014; Bückner & Korzilius, 2015; Eisenberg et al., 2013; Ramsey & Lorenz, 2016). Therefore, much is unknown about the effectiveness of cultural training programs and their link to CQ development.

Studying abroad is widely believed to increase undergraduate students' cultural competence, yet the effects of study abroad on their CQ remain unknown. To date, only 4 studies have examined the relationship between studying abroad and undergraduate students' CQ development (Chao et

al., 2017; McRae et al., 2016; Varela & Gatlin-Watts, 2014; Wood & St. Peters, 2013). Three of the programs analyzed unstructured, semester-long exchange programs in which students learned independently (Chao et al., 2017; McRae et al., 2016; Varela & Gatlin-Watts, 2014), and only one program examined an instructor-led, short-term experience (Wood & St. Peters, 2013). Research suggests that short-term study abroad programs are not as beneficial as long-term programs because they limit the student's time, exposure to locals, and knowledge necessary to quickly foster CQ development (Moon et al., 2012, 2013; Tay et al., 2008). However, these studies do not examine the effects of short-term, *instructor-led* programs, which can be useful CQ development tools if well-structured and organized (Wood & St. Peters, 2013). Short-term, instructor-led programs can help students maximize their time abroad by facilitating learning through opportunities to interact with locals and gain culture-specific knowledge (Moon et al., 2012; Takeuchi et al., 2005). One major limitation to these previous studies is a lack of experimental design and control conditions. Accordingly, determining how much CQ growth is results from the study abroad experience and how much is due to another individual- or program-level factor is difficult. Thus, much remains unknown about the associations between CQ growth and different study abroad formats.

## **Literature review**

### **Cultural Intelligence**

CQ<sup>1</sup> refers to a person's capability to interact effectively in culturally diverse encounters (Early & Ang, 2003; Thomas et al., 2008). CQ consists of four related (yet distinct) domains: motivation, cognitive, metacognitive, and behavior CQ. Motivation CQ refers to a person's interest level, tenacity, and self-confidence during multicultural interactions (Earley & Ang, 2003). Motivation CQ is the first step to cultural adjustment and drives the other three domains. Cognitive CQ refers to a person's understanding of cultural similarities and differences. People with high cognitive CQ have cultural self- and other-awareness and understand that one's cultural background influences their actions (Earley & Ang, 2003). Metacognitive CQ refers to a person's

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<sup>1</sup> Note, throughout this dissertation the abbreviation "CQ" will reference all four domains: motivation, cognitive, metacognitive, and behavior, unless otherwise stated. When referencing individual constructs, their proper name will be used.

ability to plan for and apply cognitive elements during cultural interactions (Earley & Ang, 2003). High metacognitive CQ individuals positively influence the shared value of teams they work with, especially when the group is heterogeneous (Adair et al., 2013). Behavior CQ refers to a person's awareness of multicultural interactions and how they adapt their behavior to meet any ci needs (Earley & Ang, 2003). Behavior CQ is crucial because it refers to a person's actions during intercultural situations that require unique or specific behaviors. Accordingly, behavior CQ refers to how people act, whereas the other three focus on a person's motivation and cognition. Behavior CQ is vital because a person can have the motivation (motivation CQ), cultural knowledge and skills (cognitive CQ), and strategies (metacognitive CQ) necessary to succeed without the ability to translate those skills into appropriate behavior, which may lead to cultural misunderstandings.

Ang et al. (Ang et al., 2007) developed the Cultural Intelligence Scale (CQS), a 20-item questionnaire that uses a 7-point Likert system. Students rated their responses from strongly disagree to strongly agree for each of the four CQ domains. For example, '*I am confident that I can socialize with locals in a culture that is unfamiliar to me.*' (motivation), '*I know the cultural values and religious beliefs of other cultures.*' (cognitive), '*I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.*' (metacognitive), and '*I change my verbal behavior (e.g., accent, tone) when a cross-cultural interaction requires it.*' (behavior). See Appendix A for the entire CQS.

The CQS was developed in response to the hundreds of measures designed to assess cross-cultural competence. Some of the most commonly used instruments are the Cross-cultural Adaptability Inventory (CCAI), Intercultural Adjustment Potential Scale (ICAPS), Intercultural Development Inventory (IDI), Intercultural Sensitivity Scale (ISS), Multicultural Personality Questionnaire (MPQ), Sociocultural Adaptation Scale (SCAS), and the Global Competencies Inventory (GCI). Earlier work using these scales poured the foundation for the CQ construct by identifying the essential cognitive skills, contextual factors, and intercultural experience. However, among these assessment tools, no single measure became the gold standard. Accordingly, a new approach emerged that incorporated the scientific understanding of how cognitive structures and societal contexts influence intercultural interactions.

Early and Ang (2003) combined three interactional intelligence theories when developing their CQ construct. The first of these theories is Gardner's (1983) theory of multiple intelligences, which states that each person has different abilities that develop through genetics or acculturation



and socialization. The second theory that Early and Ang incorporated was Sternberg's triarchic theory (1985). Sternberg's theory states that intelligence includes internal processes (e.g., information processing), external influence (e.g., environment), and experience (e.g., ability to navigate unfamiliar environments). Moreover, the theory states that intelligence requires knowledge (cognition), metacognition (strategy), and performance (behavior). Finally, they used Ceci's (1990) bioecological theory of intelligence, which states that a person must be motivated to use their innate abilities and skills to interact with their environment effectively. Since its creation, researchers translated the CQS into several languages across diverse cultural contexts. Research using the CQS has demonstrated its construct validity (Matsumoto & Hwang, 2013), convergent and discriminative validity (AL-Dossary, 2016; Moyano et al., 2015; Ward et al., 2009), and predictive validity (Matsumoto & Hwang, 2013).

### ***CQ Development in the Workplace***

Over the last decade, several studies have examined how corporate executives, government employees, and expatriates develop CQ. These studies have examined the effects of lectures, psychological training sessions, international experience, and cross-cultural training programs. For example, Rehg et al. (2012). examined 38 US military and government civilians who received a series of nine cultural training sessions over three months. The nine sessions were not sequential or related and primarily focused on delivering cultural information through PowerPoint presentations. This study was among the first to empirically demonstrate that cultural training can lead to cognitive and behavior CQ development. Moon et al. (2012) surveyed 190 Korean expatriates to examine the effects of cultural training length and comprehensiveness on CQ. Training comprehensiveness, but not training length, was associated with development in all four CQ domains. Furthermore, they observed a positive relationship between goal setting and CQ. Similarly, Li (2013) surveyed 294 international executives to assess their CQ and any association with past international experiences and learning styles. The length of previous international experiences was associated with CQ among the executives. The effects were most substantial among participants with a divergent learning style.

Other studies examined less time-consuming cultural training interventions. For example, Reichard et al. (2013) examined the effects of a 2-hour cultural psychology training session of the CQ of university staff members at a South African university. After the brief training session,

overall CQ improved, and these effects persisted at a 1-month follow-up. Finally, Reichard et al. (2015) conducted a thematic analysis of undergraduate students' cultural experiences and concluded that cross-cultural interactions were a key component of cultural development. Based on this finding, they trained 130 employees using cultural experiences and reflective journaling. These methods increased employees' metacognitive and behavior CQ but did not affect motivation or cognitive CQ.

Table 1. Cultural Training, International Experience and CQ in the Workplace

Authors	Subjects	Approach	Control Group	Theoretical Design	CQ Outcomes	Notes
Rehg (2012)	N=38 US Government Employees	9 formal training sessions over three months. Lecture format using PowerPoint presentations.	No	None	Motivation:- Cognitive: + Metacognitive: Behavior: +	Link between self-efficacy and CQ.
Moon (2012)	N=190 Korean Expatriates	Survey about previously completed cultural training.	No	None	Motivation: + Cognitive: + Metacognitive: + Behavior: +	Comprehensiveness (not length) of cultural training was associated with CQ development.  Positive relationship between goal orientation and CQ.
Li (2013)	N=294 International Executives	Web-based survey about past international experiences.	No	Experiential Learning Theory	Motivation: + Cognitive: + Metacognitive: + Behavior: +	Length of international experience associated with CQ development.  Divergent learning style was positively related to CQ.
Reichard (2014)	N=71 South African University Staff	2-hour cultural psychology training session.	No	Informed by Social Learning Theory	Motivation: n/a Cognitive: n/a Metacognitive: n/a Behavior: n/a	Overall CQ improved and remained at 1-month follow-up.
Reichard (2015)	N=130 Corporate employees	Cultural trigger events and reflective journaling.	No	None	Motivation: no diff Cognitive: no diff Metacognitive: + Behavior: +	Cultural trigger events reduced ethnocentrism.

Note: +=significant increase, -=significant decrease, no diff. = not significant differences, n/a = not tested or reported

### ***CQ Development in the University***

To help students succeed personally and professionally, universities should measure students' CQ and investigate ways to improve it. Researchers have examined two ways to help college students develop their CQ through cultural training courses and study abroad experiences.

#### ***Cultural Training Courses and CQ Development***

University cultural training programs provide special cultural instruction through stand-alone programs or as a larger course component. These programs typically use lectures, role-plays, and experiential learning techniques and have observed varying effects on CQ development. Hodges (2011) assessed 172 students from 8 universities in Australia, Russia, Thailand, and the United States who participated in 8 web-based learning modules. The modules aimed to provide students with experience in real-world industry issues to foster CQ development as it applies to the textile industry. After the 8 modules, students' cognitive and metacognitive CQ increased. Baker and Delpechitre (2016) incorporated video case studies and intercultural buyer-seller role-play interactions into an existing advanced sales course, and they found significant improvement in all four CQ domains.

Other studies, such as Ramsey and Lorenz (2016), looked at an extensive course designed for intercultural training. They reported that compared to a control group, MBA students who completed a 16-week intercultural training increased in overall CQ. Presbitero and Toledano (2017) examined the impact of a combination of lectures, role-play activities, and case studies completed over 6 months. They observed an increase in Overall CQ. Buchtel (2014) examined the impact of a cultural psychology course on pre-post CQ development. Compared to a control group, students in the cultural psychology course improved in metacognitive CQ. Rosenblatt (2013) conducted a 6-8 week experiential training course that incorporated education and cross-cultural contact into a management course. Among their participants, post-CQ scores were positively correlated with overall CQ development. These findings were most robust among students whose pre-departure assumptions about the host culture were challenged and disconfirmed by their experience abroad, suggesting that challenging personally held cultural assumptions may play a unique role in CQ development.

Additional studies incorporated more experiential learning techniques in their efforts to examine program effects on student CQ. These studies focused on moving beyond information-only training by incorporating direct intercultural experiences, interactions, and reflections. Shokef and Erez (2008) organized 191 students from different MBA programs worldwide (representing five unique countries) into multicultural teams who virtually completed a course project. The project required students to analyze and compare the difficulties that managers from their country face while working in another country and reflect on this process using a 12-slide PowerPoint presentation. This project increased motivation, metacognitive and behavior CQ. Ko et al. (2013) examined a 7-week distance learning course with students from multiple countries and found that behavior CQ improved.

Contrarily, other studies found varying levels of CQ development after receiving cultural training. Fisher (2011) measured the effectiveness of a 4-week cross-cultural training conducted as a university course component. The training included 6 lectures, 1 simulation game, and 1 behavior modification session. After the training, students' cognitive and metacognitive CQ decreased; however, students who self-reported as more open-minded at Time 1 were more likely to increase in motivation CQ. The researchers concluded that their students' CQ decrease is due to increased self-awareness, making them more conscious of their cultural incompetence. Eisenberg (2013) examined MBA students assigned to work intensively for 3 weeks in cross-national teams to complete a course project. After 3 weeks, the students did not experience significant development in any CQ domain. The authors suggest that intercultural experience itself does not automatically equate to CQ development. Finally, Taras (2013) observed a small effect on motivation CQ after students worked on virtual multicultural teams. While these two studies found no CQ improvement, most previous research on training programs found an improvement in at least two of the four CQ domains.

MacNab (2012) conducted an 8-week training program as a component of an international management course. The study collected data from 373 students participating in the international management course over three years. The training program followed a 7-stage process including 1) awareness development, 2) experiential instruction, 3) pre-experience expectation setting, 4) new cultural experience, 5) post-experience and internalization, 6) trainer feedback, and 7) group discussion and social sharing. For the new cultural experience, students interviewed someone from a culture previously unfamiliar to them. After this training, these students significantly increased

in motivation, metacognitive and behavior CQ. Erez (2013) created a 4-week, online team project for 1,221 MBA students. Multi-level modeling analyses revealed that CQ significantly increased through the project, and these effects remained after 6 months. Bückner and Korzilius (2015) examined the impact of an experiential simulation game tested against a control group. The simulation game effectively helped increase motivation, metacognitive and behavior CQ among a small group of students. Alexandra (2018) tested a 6-8 week experiential training project and found that overall CQ improved. Furthermore, their observation suggests that students' openness to change their stereotypical views mediated CQ development. Finally, a qualitative study using content analysis of student service-learning workshop reports demonstrated that workshop participation helped students become more aware of how culture influences organizations and how to bridge cultural divides, leading to an increase in metacognitive and behavior CQ (de Ramirez, 2015).

Table 2. University Cultural Training Courses and CQ

Authors	Subjects	Approach	Control	Theoretical Design	CQ Outcomes	Notes
Shokef (2008)	N=191 MBA Students from 5 unique countries	3-week, virtual multicultural team project	No	None	Motivation: + Cognitive: no diff Metacognitive: + Behavior: +	Cultural values (universalism) positively related to CQ development.
Fischer (2011)	N=49 University Students in New Zealand	4-week training course including 6 lectures, 1 simulation game, and 1 behavior modification session	No	Training Theory	Motivation: + Cognitive: - Metacognitive: - Behavior: no diff	More open-minded students experienced motivation CQ development.
Hodges (2011)	N=172 University Students	8 web-based modules	No	None	Motivation: no diff Cognitive: + Metacognitive: + Behavior: no diff	
MacNab (2012)	N=373 University Students	8-week training with cultural experiences and debrief exercises	No	Contact Theory	Motivation: + Cognitive: no diff Metacognitive: + Behavior: +	
Rosenblatt (2013)	N=212 Management Students and Professionals	6-8-week cultural training with cross-cultural contact	No	Experiential Learning Theory	Motivation: Cognitive: Metacognitive: Behavior:	Overall CQ improved. Perception of optimal cross-cultural contact and CQ development is mediated by expectancy disconfirmation.
Eisenberg (2013)	N=439 Students	8-week training course or 2.5-day intensive training	No	None	Motivation: - Cognitive: + Metacognitive: + Behavior: no diff	Motivation CQ decreased for students in the 2.5-day intensive training
Taras (2013)	N=3355 Students from Universities across the world	Global virtual student collaboration projects in international management education courses	Yes	None	Motivation: + Cognitive: no diff Metacognitive: no diff Behavior: no diff	

Table 2 continued

Erez (2013)	N=1221 MBA Students	4-week online, experiential-based, multicultural project	No	Experiential Learning Theory	Motivation: n/a Cognitive: n/a Metacognitive: n/a Behavior: n/a	Overall CQ improved.
Buchtel (2014)	N=54 Undergraduate Students	Upper-division Cultural Psychology Course	Yes	None	Motivation: no diff Cognitive: no diff Metacognitive: + Behavior: no diff	Students who received lower grades were more likely to endorse cultural stereotypes
de Ramirez (2015)	N=20 Students	Student-led workshops	No	None	Motivation: no diff Cognitive: no diff Metacognitive: + Behavior: +	
Bücker (2015)	N=66 Undergraduate Students	ECOTONOS simulation game	Yes	None	Motivation: + Cognitive: no diff Metacognitive: + Behavior: +	
Ko (2015)	N=14 University Students enrolled in physical education	Qualitative survey and intercultural reflection	No	Process Model of ICC	Motivation: + Cognitive: - Metacognitive: - Behavior: +	
Ramsey (2016)	N=152 MBA Students	16-week cross- cultural management course	Yes	Social Cognitive Career Theory	Motivation: n/a Cognitive: n/a Metacognitive: n/a Behavior: n/a	Overall CQ improved.
Baker (2016)	N=79 Undergraduate Sales Students	Video case studies and role-play exercises	No	None	Motivation: + Cognitive: + Metacognitive: + Behavior: +	
Presbitero (2017)	N=225 Global team members	6, 6-hour training sessions using lectures, case studies, role-play	No	None	Motivation: n/a Cognitive: n/a Metacognitive: n/a Behavior: n/a	Overall CQ improved
Alexandra (2018)	N=122 Graduate Students	6-8-week experiential training program using a 7-stage intervention process		Experiential Learning Theory	Motivation: n/a Cognitive: n/a Metacognitive: n/a Behavior: n/a	Overall CQ improved. Socially dominant people are less likely to benefit from cross- cultural contact

Note: +=significant increase, -=significant decrease, no diff. = not significant differences, n/a = not tested or reported



### *Study Abroad and CQ Development*

Fewer studies have examined the CQ effects of study abroad programs. Among these studies, Wood (2013) surveyed 61 MBA students who participated in an 11-12 day study tour to one of three countries. During the time abroad, these students participated in question and answer sessions with local people to learn more about specific-cultural knowledge to improve their ability to integrate into the host nation's culture. The study demonstrates that short-term study abroad programs can help students develop motivation, cognitive, and metacognitive CQ. Varela (2014) followed 86 undergraduate business students enrolled in an exchange program at a foreign university. The students participating in the semester exchange programs improved their cognitive and metacognitive CQ. Furthermore, students whose program length was longer experienced amplified metacognitive CQ growth.

Two additional studies also examined semester-long exchange programs. McRae (2016) examined the effects of a work and study program that sent Canadian students to Europe and European students to Canada. All students experienced increased cognitive, metacognitive, and behavior CQ. The effects on metacognitive and behavior CQ were most extensive among the students in the working group, while the impact on cognitive CQ was strongest among the study abroad group. Finally, Chao (2017) examined the effects of an exchange program on 270 Chinese undergraduate students studying in either the United States or Europe. They observed a relationship between social adjustment and CQ development in all four domains.

Table 3. Study Abroad and CQ

Authors	Subjects	Approach	Control	Theoretical Design	CQ Outcomes	Notes
Wood (2013)	N=61 MBA Students	11-12-day tour to China, Italy, and Germany, or Costa Rica.	No	Experiential Learning Theory	Motivation: + Cognitive: + Metacognitive: + Behavior: -	Question and answer sessions with locals and time for unstructured exploration
Varela (2014)	N=84 Business Students	Exchange program.	No	None	Motivation: - Cognitive: + Metacognitive: + Behavior: +	Longer study abroad was associated with metacognitive CQ.
McRae (2016)	N=152 Undergraduate Students	Semester exchange program for either working or studying abroad in Canada or Europe	No	None	Motivation: - Cognitive: + Metacognitive: + Behavior: +	Work students developed more metacognitive and behavior CQ. Study students developed more cognitive CQ.
Chao (2017)	N=270 Chinese students studying in the US or Europe	Exchange program.	No	Contact Hypothesis Framework	Motivation: + Cognitive: + Metacognitive: + Behavior: +	Cross-cultural adjustment experiences are important to CQ.

Note: +=significant increase, -=significant decrease, no diff. = not significant differences, n/a = not tested or reported

### *Combined Cultural Training and Study Abroad Approach*

To date, only one study has examined the effects of a study abroad program after completing a cultural training program. Engle and Crowne (2013) compared a 1-day pre-departure cultural training course followed by a 6-11 day service-learning study abroad to a comparison group. The service-learning projects concentrated on the students' field of study. They compared the effectiveness of this experience to a control group. Students in the experimental group saw an increase in all four CQ domains, while students in the comparison group experienced no growth.

Overall, cultural training programs and study abroad experiences demonstrate positive effects on all four CQ domains. However, inconsistent results across studies suggest that some student-level or program-level characteristics may influence the CQ development process. A recent review of the literature proposed an explanation for discordant results across studies. After a critical review of the literature, the authors argue that inconsistencies among CQ development research are due, in part, to a lack of studies that use theory to explain the empirical relationships between their program components corresponding CQ growth (Michaela and Ott, 2017 or 2018). Incorporating theory into empirical research on CQ is vital because it can help understand why and how cultural training and study abroad programs increase students' CQ (Liao & Thomas, 2020).

### **Social Learning Theory**

Bandura's Social Learning Theory (SLT) is one potential mechanism to explain how and why cultural training courses and study abroad experiences can lead to CQ development. SLT integrates behavior and cognitive theories of learning into a comprehensive theory that explains how individuals learn new social behaviors (Bandura, 1977). This process involves observing a behavior, extracting information from the observation and dedicating it to memory, and then engaging in the action and evaluating one's performance (Bandura, 1977; Frayne & Latham, 1987; Latham & Saari, 1979). Social learning has cognitive and behavioral processes that are accomplished by directly observing real-world actions and/or demonstrating these behaviors through verbal and non-verbal instruction. Behavior demonstrations may take place in a controlled environment through symbolic modeling or real-world participatory reproduction. Accordingly,

how much a learner absorbs is dependent on three central elements: a person's *attention*, *retention*, and *reproduction*.

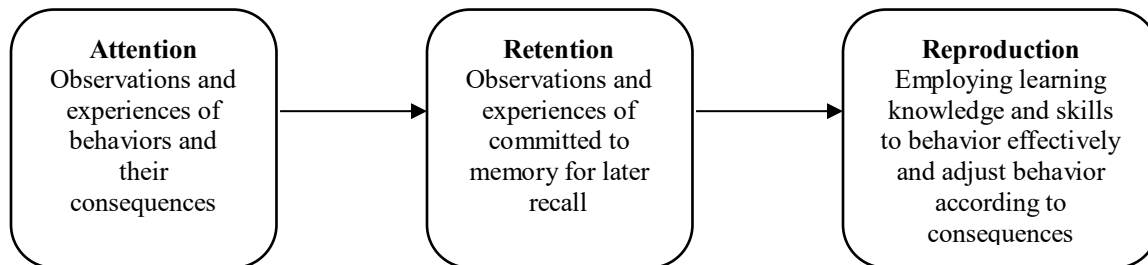


Figure 1. Bandura's Social Learning Theory for Observational Learning.

During the *attention* phase, a person must notice and pay attention to new behaviors (Bandura, 1977). People tend to be more attentive to the necessary actions for everyday existence or those that provide some intrinsic reward. People may pay attention to a new cultural environment to learn how people act in everyday situations. For college students studying abroad, this could mean paying attention to how people in different cultures communicate (verbal and non-verbal) in social settings with friends, family, and strangers. For example, American university students traveling abroad to an eastern country may need to pay attention to differences in eye-contact and personal greetings to interact in a locally appropriate manner effectively. This process also allows students to test their cultural knowledge and assumptions about culture.

During the *retention* phase, cultural information is memorized, and newly acquired strategies and skills are practiced for recall during future cultural interactions (Bandura, 1977). Typically, this involves mental and behavioral rehearsals to retain information. The more a person rehearses, the more the learning is enhanced. For students preparing to study abroad, this could mean practicing with another student, the verbal and non-verbal communication behaviors expected in the host country. By practicing, the student can embed the information into memory to call upon the knowledge or skill when required.

*Reproduction* is the most effective phase for learning (Bandura, 1977). It involves enacting appropriate behavior, performing in-the-moment behavioral self-assessment, and making any necessary self-corrective adjustments (Black & Mendenhall, 1990). Reproduction can occur in

controlled environments (e.g., classroom setting) or in real-world situations (study abroad). Students have ample opportunity to engage in *reproduction during study abroad programs* by applying the knowledge and skills they acquired and practiced to situations with real-world consequences. *Reproduction* is enhanced through post-interaction reflections focused on using the learning outcomes of the experience in future interactions (Bandura, 1977).

SLT is used to explain learning in various, such as healthcare and education. In healthcare, researchers applied SLT to improve self-care among pre-diabetic patients (Chen et al., 2015), to promote healthy behaviors (Bravender et al., 2013; Rosenstock et al., 1988) and to reduce anxiety and depression in patients with cancer (Hauffman et al., 2017; Koropchak et al., 2006). In education, researchers applied SLT to help coaches train their athletes (Connolly, 2017) and help educators adapt to virtual environments (Smith & Berge, 2009). Likewise, SLT holds promise for helping individuals improve their CQ because its learning structure aligns closely with the CQ format and the objectives of cultural training courses and study abroad experiences. The *attention* and *retention* phases of SLT match closely with three of the CQ domains (motivation, cognitive, and metacognitive CQ). Furthermore, the *reproduction* phase aligns with the metacognitive and behavior CQ domains. Additionally, SLT helps explain the effects of cultural training courses and study abroad experiences on CQ through observations of whom/what students pay attention to, how they retain/rehearse information, and how they reproduce behavior while interacting with the environment.

### **Social Learning Theory and Cultural Training**

Cultural training courses allow students to engage in all the *attention*, *retention*, and *reproduction* phases of SLT through symbolic modeling while in a controlled university environment. This format enables instructors to plan curriculum around each of these SLT phases. For example, during the *attention* phase, an instructor may teach an interactive lecture on general cultural differences in non-verbal communication (cognitive CQ). Then, during the *retention* phase, the instructor could ask the students to pair up and practice different non-verbal communication forms and discuss their application to successful interactions in diverse social encounters (cognitive and metacognitive CQ). Focusing on both of these components aligns with motivation CQ. As students gain more cultural knowledge and develop skills and strategies for intercultural

interaction, their self-efficacy, and desire to engage with culturally different people should increase. Finally, during the *reproduction* phase, students can begin interacting with culturally diverse others on campus and reflecting on these experiences. SLT explains CQ development in cultural training courses as a social learning process that involves attention to informational and experiential intercultural content and retention of the knowledge gained from this information and activities. Furthermore, university courses allow instructors to provide feedback and guidance throughout the course to help students apply new knowledge and skills using effective strategies.

### **Social Learning Theory and Study Abroad**

Studying abroad provides students with the opportunity to re-engage in the *attention*, *retention*, and *reproduction* phases of the SLT by testing their cultural assumptions and enacting behavior in a cultural setting where those actions are required. After these real-world encounters, students can reflect on their interactions through journaling and one-on-one meetings with their instructor (reinforcement), make any corrective actions necessary and repeat this process. Thus, SLT provides a framework to explain how a cultural learning program comprised of both a cultural training course and a study abroad experience can help students increase their CQ through *attention*, *retention*, and *reproduction* of knowledge, skills, and metacognitive strategies. However, past studies infrequently use SLT (or any other learning theory) to explain the relationships they observed between their cultural training or study abroad programs and student CQ.

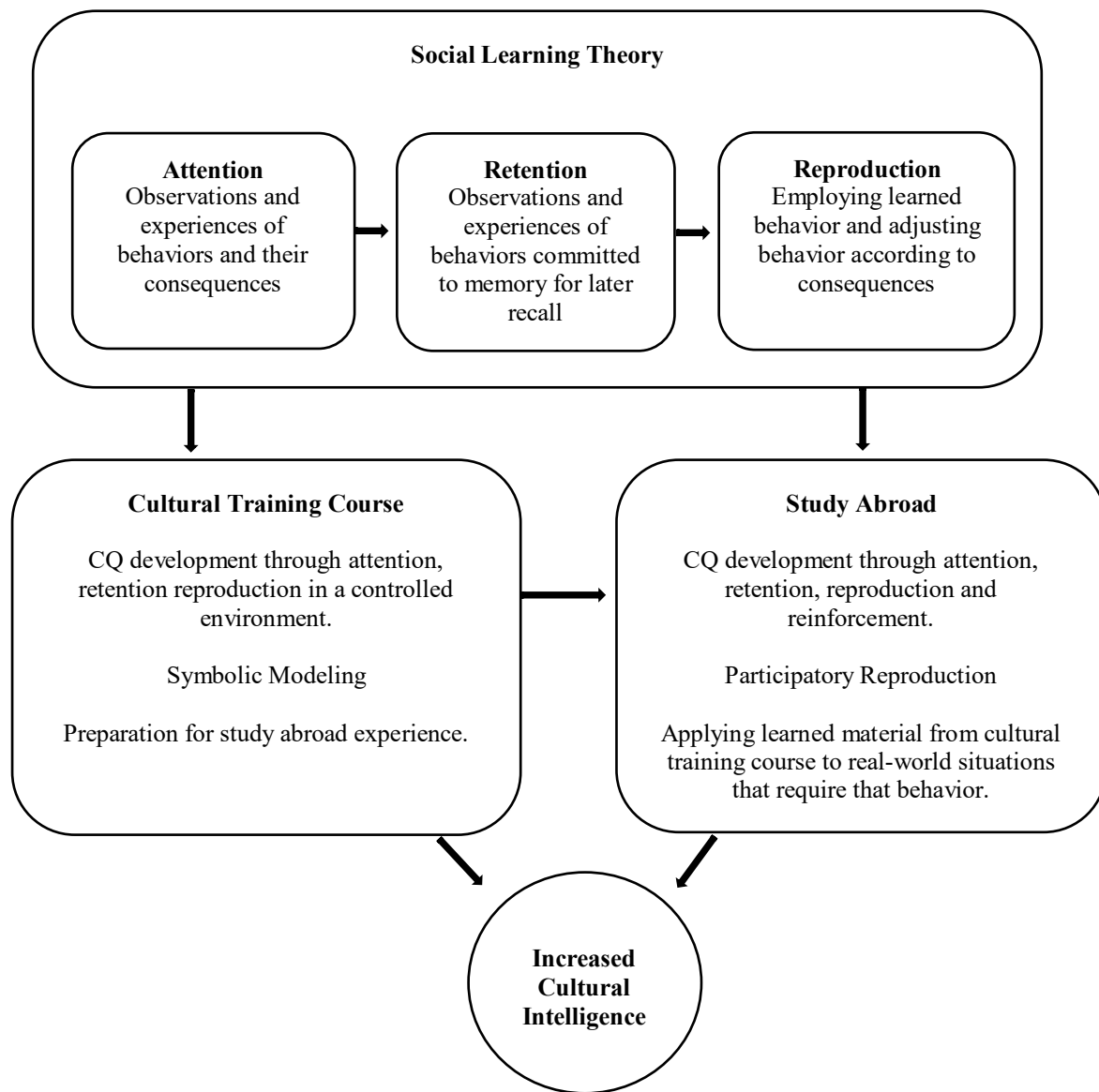


Figure 2. Social Learning Theory: A Link Between Cultural Training, Study Abroad, and Student CQ development.

## Purpose

There are several identifiable gaps in the literature on undergraduate students and CQ development research. Few studies have examined the impact of university cultural training courses and study abroad experiences. Among previously published studies, most fail to apply a theoretical explanation for their research design and findings, and none have used an experimental research design. Furthermore, while several studies have examined the moderating effects of CQ, little research has examined how potentially influential individual- and program-level variables moderate an intervention's effects on student CQ development. Several studies suggest that more extended study abroad programs lead to more growth than shorter programs because of an increased volume of potential intercultural interaction opportunities. However, these studies tend not to report on short-term, faculty-led programs. Therefore, little research has explored how study abroad program duration affects undergraduate students' CQ development while participating in a faculty-led program.

This dissertation examines data collected over the last three years as part of a program developed using SLT that combines an on-campus cultural training course with instructor-led study abroad experiences. This dissertation uses a quasi-experimental research design to examine the combined effect of the on-campus cultural training course followed by a study abroad experience on pre-post changes in CQ for undergraduate students. **Study 1** examines the effectiveness of the combined effect of the cultural training course and study abroad program on undergraduate students' overall CQ and all four domains. Furthermore, it examines whether a student's study abroad location, cultural mentor, cultural development goals, and the quality of their reflective journal entries moderate CQ development. **Study 2** further investigates the impact of study abroad program duration on CQ development. The effects of student-level factors (age, gender identity, ethnicity, year in school, previous overseas experience, and grade point average) and program-level factors (cultural mentors, and the number of countries each study abroad program visited) are analyzed.



## **Research Questions**

**RQ1:** Do undergraduate students participating in an on-campus cultural training course followed by a study abroad experience significantly improve their CQ more than a comparison group?

**RQ 1.2:** Do study abroad program location, a student's cultural development goals, the quality of their reflective journal entries, and/or their cultural mentor moderate CQ development?

**RQ 2:** After undergraduate students complete a shared on-campus cultural training course, for how long must they study abroad (3-weeks abroad vs. 6-weeks abroad) to experience CQ development?

**RQ 2.2:** Do any student-level factors (age, gender identity, ethnicity, year in school, previous overseas experience, grade point average) and/or program-level factors (cultural mentor, number of countries visited) moderate CQ development?

## CHAPTER 2: METHODS

### Study 1

#### Overview

These data come from a quasi-experimental study that examined the effects of an on-campus cultural training course followed by a 3-week study abroad experience. Data collection occurred during the 2017 spring and summer semesters. To explore the program's effects, undergraduate students' CQ was measured at two time points: before participation in the on-campus cultural training course and after completing the study abroad experience. CQ scores were compared to a comparison control group comprised of students who had participated in an on-campus *summer research laboratory program*. CQ scores of students participating in the summer research program were also measured before and after their program. Multilevel model estimates examined pre-post CQ development between each group while controlling for time nested within each student. Purdue University's Institutional Review Board approved this study.

#### Research Questions

Do undergraduate students participating in an on-campus cultural training course followed by a study abroad experience significantly improve their CQ more than a comparison control group? Furthermore, among the students in the cultural training course and study abroad group, does the study abroad program location, CQ specific cultural development goals, and/or the intellectual standards of reflective journaling moderate CQ development?

#### Participants

This study contains two groups of interest: an experimental group and a comparison control group. Students in the *experimental group* participated in a 9-week, on-campus cultural training course during the Spring 2017 semester. After completing the course, the students embarked on one of three 3-week study abroad experiences to either Australia, Japan, or New Zealand. Students

in the *summer research program* (comparison group) participated in a 12-week, on-campus program. Both programs were open to student applicants of all majors and years in school. All students were approached to participate in the study. Their study participation did not impact their ability to participate in either program. After consenting, all participants received a study ID number, and after data collection, student responses were de-identified. All students provided written informed consent. See Appendix C. for an example consent form.

### ***Design of the Experimental Group***

The experimental group completed a 9-week on-campus cultural training course followed by a 3-week study abroad experience. This combined experience incorporates Bandura's Social Learning Theory into a program to increase undergraduate students' CQ. SLT stipulates that three central elements must be present in skills training and development (such as improving CQ): *attention, retention, and reproduction* (Bandura, 1977). A scaffolding approach to learning where concepts compound based on student's knowledge and experience as they learn new concepts and skills (Bennett, 2004; Holmes et al., 2015) was used. After completing the cultural training course, students embarked on a study abroad experiences to either Australia, Japan, or New Zealand. A group of instructors experienced in cultural development training taught the training course and led the study abroad experiences.

### ***Social Learning Theory***

Bandura's Social Learning Theory helps explain how a person can develop new cultural knowledge, skills, strategies, and behaviors through three cognitive and behavioral phases: *attention, retention, and reproduction*. In the *attention* phase, a person observes and experiences actions and their consequences in diverse cultural situations. Through observations, people learn about the similarities and differences between cultures and learn how to exhibit appropriate verbal and non-verbal behaviors (Thomas et al., 2008). For the *attention* phase, the 9-week cultural training program was designed to help students learn about cultural similarities and differences through traditional and experiential learning techniques. There is little evidence that cultural development programs are effective at developing CQ among undergraduate student populations (MacNab et al., 2012; Taras et al., 2013); however, there is a rich literature examining the effects

of cultural training programs on graduate students CQ (Alexandra, 2018; Eisenberg et al., 2013; Erez et al., 2013; Ko et al., 2013; Ramsey & Lorenz, 2016; Rosenblatt et al., 2013) and also research using organizational and business sector participants (Reichard et al., 2013; Reichard et al., 2015). This research linked the use of lectures to deliver general and specific cultural knowledge to an increase in cognitive (Buchtel, 2014), metacognitive (Buchtel, 2014), behavior (Rehg et al., 2012), and overall CQ (Presbitero & Toledano, 2017). Additionally, the course under review incorporated experiential learning techniques such as role-play exercises (Bücker & Korzilius, 2015; Presbitero & Toledano, 2017; Reichard et al., 2013), simulation games (Bücker & Korzilius, 2015), and interviewing someone from an unfamiliar culture and reflecting on the experience (MacNab et al., 2012), which successfully to increase CQ in past studies.

In the *retention* phase, a person commits the observed behaviors and consequences to memory for use in future intercultural settings. The course facilitated the *retention* phase through debrief exercises using Thiagi's Six-Step Debriefing Process (Thigarajan, 2004). Debriefing is an active experience that encourages participants to relate the information they learned throughout the activity to the outside world. Furthermore, students completed reflective journal entries to apply class content, analyze past intercultural interactions, and use those insights in future interactions.

Through the final phase, *reproduction*, students begin to apply and evaluate their cultural skills in an environment where those behaviors are necessary for effective interaction. This program facilitates the *reproduction* phase through immersive study abroad experiences. Students practice and receive feedback on their cultural behavior through structured and semi-structured cultural experiences, reflective journaling, and cultural mentoring. Immersive experiences that use structured cultural interactions and experiential learning are considered the most effective for improving students' cultural skills (Vande Berg, 2009).

### *Cultural Training Course*

The cultural training course met for nine 3-hour sessions during separate weeks of the 2018 spring semester. Before the course, all students completed a CQ pre-assessment, which informed personalized feedback reports that outlined students' CQ strengths and weaknesses. Cultural mentors guided students to use the feedback report in preparing a *personal development plan* to

improve their CQ. See Appendix B. for a week-by-week summary of the cultural training course content.

The course focused on four cultural domains: cultural self-awareness, cultural other awareness, managing emotions, and bridging cultural differences. See *Figure 3. Four Cultural Domains* below (Vande Berg, 2016). Cultural self-awareness is the recognition and awareness of how one's own culture shapes their worldview, including personal values, beliefs, perceptions, and behavior (Bennett & Castiglioni, 2004; Schaetti et al., 2008; Vande Berg, 2016). Similarly, cultural other-awareness is the recognition and awareness of how culture impacts the worldview and behavior of other people (Vande Berg, 2016). Individuals who are culturally self- and other-aware are conscious of the intersection between culture and how they and others see and interact with the world. Accordingly, they can apply this information to guide meaningful interactions in intercultural situations. Managing emotions is a skill that relates to an individual's ability to recognize, accept, and express their feelings without becoming overwhelmed (Savicki, 2008; Schaetti et al., 2008; Vande Berg, 2016). Being present in the moment helps individuals be aware of how they respond to those emotions and process their emotional response before reacting (Guendelman et al., 2017). Finally, bridging cultural divides is applying cultural self- and other-awareness and managing emotions into a strategy to prevent or overcome potentially impeding cultural interactions (Vande Berg, 2016).



Figure 3. Four Cultural Domains

Course topics included cultural value dimensions; differences in nonverbal communication, communication styles, learning styles, conflict styles; mindfulness, emotional regulation, and connecting empathically; describing, interpreting, and evaluating; comfort, learning, and panic zones; and reflecting on cultural interactions. Content delivery methods included the use of in-class lectures (*attention, retention*; cognitive, metacognitive and behavior CQ), role-play exercises and simulation games (*attention, retention, reproduction*; overall CQ), and interviewing someone from an unfamiliar background (*attention; retention, reproduction*; metacognitive and behavior

CQ). Over the course of the training, students participated in over 35 *attention-only*, 2 *retention-only*, 14 *attention/retention*, 4 *retention/reproduction* and 1 *attention/retention/reproduction* activities. These activities aligned the following CQ domains: 3 motivation-only, 22 cognitive-only, 8 metacognitive-only, 2 motivation/cognitive, 5 cognitive/metacognitive, 2 motivation/metacognitive, 4 metacognitive/behavior, and 3 cognitive/metacognitive/behavior.

Post- in-class activity debriefing allows students to reflect on an experience, extract practical implications from that experience, and apply those extractions to future intercultural situations (*retention, reproduction*; metacognitive and behavior CQ). A growing body of research on college students demonstrates the positive effects of debriefing on meaningful learning and retention (Fanning & Gaba, 2007; Levett-Jones & Lapkin, 2014; Ryoo & Ha, 2015; Shinnick et al., 2011). The use of debriefing provided students in the *experimental group* with an opportunity to question their cultural assumptions, reflect on their interactions, and adjust their cultural knowledge (Thomas, 2006) before going abroad. The Thiagi's Six-Step Debriefing Process debrief focuses on six steps of reflection: 1) *How do you feel?*, 2) *What happened in the activity?*, 3) *What did you learn?*, 4) *How does this relate to the real world?*, 5) *What if?*, and 6) *What next?* (Thigarajan, 2004).

The first step of Thiagi's Six-Step Debriefing Process (*How do you feel?*) invites participants to connect their feelings about an activity to its outcomes and express those feelings to the group. Expressing their feelings at the beginning of the debrief helps participants be more objective in their responses to the subsequent steps. In the second step (*What happened in the activity?*), participants produce a chronological recount of each activity step. Participants can compare and contrast their recollection with that of the other participants to draw general conclusions about the experience. Then, in step 3 (*What did you learn?*), participants are encouraged to use this experience to generate hypothetical principles and ideas and discuss evidence supporting or rejecting these principles/concepts. Next, step 4 (*How does this relate to the real world?*) focuses on helping the participants connect the activity and their life outside the classroom. For undergraduate students, this can mean discussing how the activity applies to life on campus or other environments. Step 5 (*What if?*) begins by discussing hypothetical changes to the activity. Participants are encouraged to use the insights they developed during the previous phases to the hypothetical alternative to speculating about how the change could impact the process and outcomes. Finally, phase 6 (*What next?*) asks participants to discuss how they will change

their behavior. Participants are encouraged to propose strategies for changing their behavior and create and apply the lessons from the activity into an action plan for the future. Phase six provided students in the study abroad group with an opportunity to use their new insights toward planning for future intercultural interactions on their forthcoming study abroad experience.

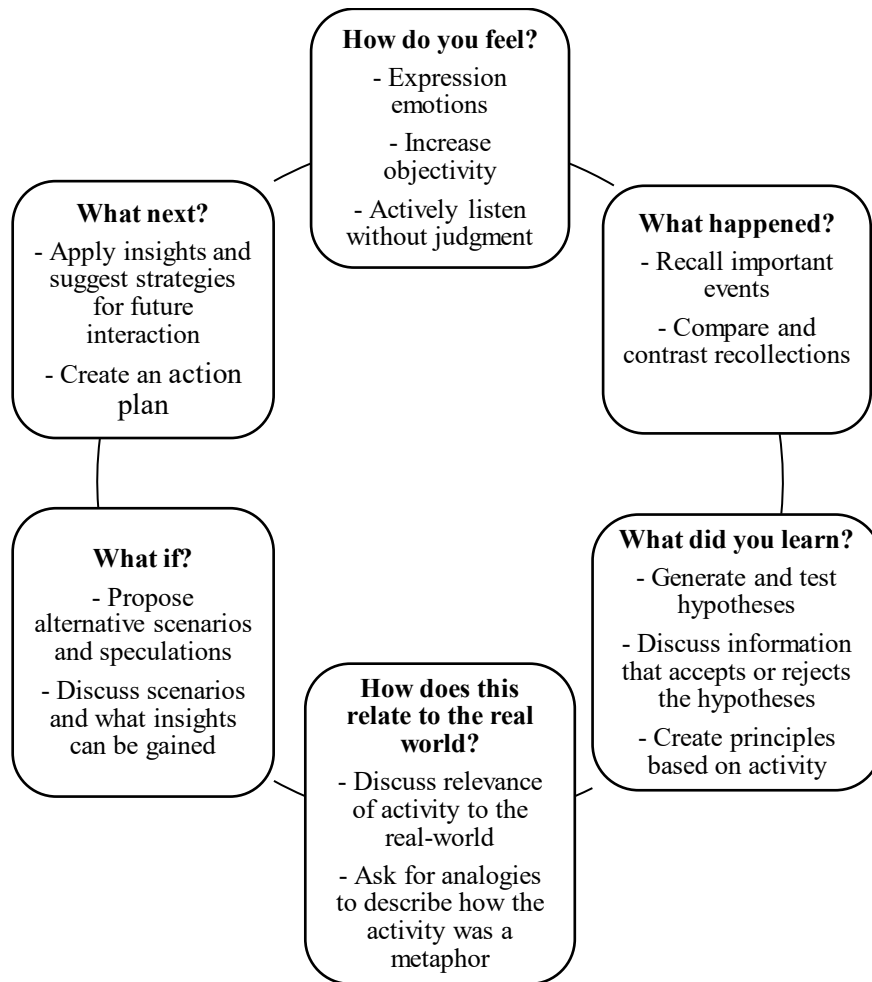


Figure 4. Thiagi Debrief Process

Focusing on these debrief questions served several purposes. First, by reflecting on these questions, students were able to reflect on the steps of the SLT consciously. For example, the first two questions of the debrief helped the students to reflect on the *attention* phase by asking them to focus on the newly learned knowledge or strategies, while the third through sixth questions aided in the *retention* phase. Second, these debrief sessions served as a training tool for the reflective

journal entry assignments that students completed overseas. While still on campus, conducting Thiagi debrief sessions modeled a framework for writing reflection journal entry assignments that students used when reflecting during their time abroad.

At the end of the course, and before the study abroad experience, students received a cultural mentor to guide their time abroad. Previous research demonstrates that mentors help students overcome potential cultural learning barriers (Lou & Bosley, 2012; Vande Berg et al., 2009) such as overwhelming culture shock (Buffington, 2014) or need for emotional support while abroad (Doyle et al., 2010). To reinforce the knowledge, skills, and strategies taught throughout the cultural training course and to help guide effective behavior abroad, the cultural mentors focused on the four interconnecting cultural mentoring actions: 1) setting the student's expectations for the culturally immersive experience, 2) teaching the students cultural knowledge of the host country's culture, 3) helping students explore and understand their own culture and how it compares and contrasts to the host country's culture, and 4) assisting students in making connections between cultural experiences they had before, and during their time abroad (Niehaus et al., 2018).

### *Study Abroad Experiences*

During each of the three 3-week study abroad experiences, students received structured and semi-structured opportunities to engage with local people and explore the culture. These opportunities included visits to historical sites, non-profit organizations, university campuses, and community or cultural events. In addition to structured activities, instructors assigned "drop off" assignments to apply cultural knowledge and skills through direct interaction with local people (Maloney & Asbury, 2018). Each student received a personalized assignment dependent on their personal or cultural goals. Several times a week, students wrote reflective journal entries about their structured activities and "drop off" experiences (Ash & Clayton, 2009). Students and cultural mentors met weekly in one-on-one sessions to discuss students' cultural experiences, reflective journal entries, and personal and/or cultural goal development. The focus was placed on structured activities, "drop off" experiences, and reflective journal writing because these activities align with all three phases of the Social Learning Theory. "Drop off" assignments required students to check their cultural knowledge and assumptions, practice their intercultural interaction strategies in real-



time, and then reflect on their experience in a journal. The entire reflective journal received a score using a standardized rubric. After the study abroad experience, students completed a CQ post-assessment and submitted a final reflection paper.

### ***Design of the Comparison Control Group***

The summer research laboratory program was tailored to the individual student and laboratory needs. The program awarded participants a \$2,500 tuition scholarship for the 12-week summer session to complete 9-credit hours of summer coursework and 140 hours of work in a faculty-led research laboratory. These students completed the CQ assessments before and after the program. They received a summary of their CQ pre-assessment; however, they received no cultural training or mentoring. The comparison control group students served as a source of counterfactual information about the student experience participating in a traditional on-campus experience.

## **Measures**

### ***Cultural Intelligence***

The Cultural Intelligence Scale (CQS) (Ang et al., 2007), which measures an individual's perceived ability to behave appropriately and manage interpersonal interactions in culturally diverse settings, was used as the primary outcomes measure in this study. The CQS is a self-assessment questionnaire containing 20, 7-point Likert scale items composed of four correlating theoretical dimensions of multicultural interaction (motivation, cognitive, metacognitive, and behavior CQ). See Appendix A for the complete CQS.

### ***Reflective Journaling***

Throughout the course, students received feedback on how they could improve their reflective journals after each assignment. Students learned to write reflective journals during the cultural training course to ensure they could dedicate their attention and energy to the mental processes engaged in reflection rather than learning the function and structure of journal writing. Students wrote reflective journals based on their cultural interactions in the host country.

During the cultural training course, students wrote reflective journals based on previous cultural interactions and misunderstandings on the following criteria: accuracy, clarity, depth, breadth, and fairness (Paul & Elder, 2013). Accuracy includes statements that are accurate and well-supported with evidence regarding personal experiences. Clarity is the use of examples to illustrate points and define terms. Depth poses and addresses salient questions that arise from others' experiences and/or statements, does not over-simplify when discussing connections with other cultures, and considers the full complexities regarding personal experiences. Breadth includes statements that capture a comprehensive picture of multiple viewpoints and perspectives. Fairness is consistently representing the perspectives and viewpoints of the host culture, as well as other viewpoints. According to Paul and Elder, these journal criteria are considered intellectual standards, essential to effective everyday life reasoning. These standards served to evaluate the students' reflective journal entries. Each students' journal received a score (1-4) for each of these five standards. Two groups were created by dichotomizing students as low-reflection (scores of 1-2) and high-reflection (scores of 3-4) for each of these five criteria.

Additionally, the journals received a score (1-6) for academic enhancement and personal growth. Academic enhancement includes statements that evaluate the students' understanding of concepts, their definitions, and uses. Personal growth contains statements that consider how the students know that they successfully grew or obtained a goal and how they will apply what they learned to the future. Scores were dichotomized as low-reflection (1-3) and high-reflection (3-4) for both criteria.

### ***Cultural Goals***

Students were encouraged to set goals concerning CQ development. Goal setting enables students to work with their mentor to identify reasonable yet aspirational areas for improvement (Jimerson & Reames, 2015). The cultural mentors worked with these students to set goals that tap into four necessary elements: 1) providing students with opportunities to build competence, 2) giving students control or autonomy over their growth, 3) cultivating the students' interest, and 4) altering their behavioral self-perception (Usher & Kober, 2012).

The mentors helped students properly implement goal-setting practices that can positively impact student outcomes (Leithwood & Sun, 2018; Moeller et al., 2012) and help them connect

their immediate experience to the future (Stronge & Grant, 2014). No quality measures assessed how well the students' goals aligned with CQ. A cultural goals score (0-4) was created. Students received one point for each CQ domain-specific goal they set. See Appendix 3 for examples of cultural goals.

## Statistical Analysis Plan

To examine change over time in both the *experimental* and comparison control groups, a multilevel model of change was estimated using STATA 15.1. Multilevel modeling provides a robust set of techniques to analyze data on individual change (Raudenbush & Bryk, 2002). For this study, multilevel modeling helped avoid several potential dataset limitations. For example, time 1 and time 2 data for both study groups were not collected concurrently. Students in the experimental group experienced a prolonged period between time 1 and 2 than the comparison control group. Furthermore, multilevel modeling works well for datasets with only two time-points, which are often insufficient for studying individual growth over time (Raudenbush & Bryk, 2002). Multilevel modeling scales the CQ instrument to maintain a constant variance over time to avoid difficulties when measuring determinants of change (Raudenbush & Bryk, 2002).

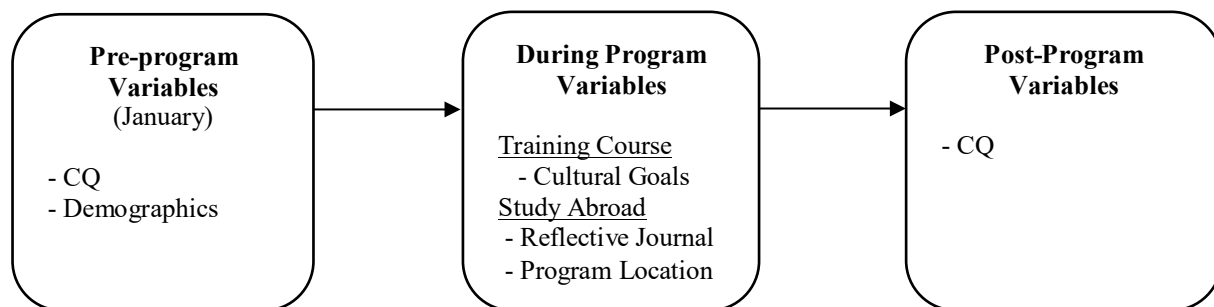


Figure 5. Data Collection Timeline for the Experimental Group

This dataset has a two-level hierarchical linear structure comprised of student questionnaire responses from two time points at level 1 (TIME) and the study group (experimental vs. comparison control) of the participant at level 2 (GROUP). The models are multilevel and

multivariate in that they contain repeated measures that are nested within individual participants across the study.

The combined effects of the repeated measures (TIME) and the study group (GROUP) of the CQ participants were estimated using four multilevel models. The model was built in a series of steps that started by creating an unconditional means model, including the intercept and no predictors. The unconditional means model served as a baseline for comparing subsequent models. Next, a multilevel model of change with a linear slope parameter of time was estimated. TIME, a level 1 predictor, is defined as 0 for the pre-program assessment and 1 for the post-program assessment. A model of change with the level 2 variable, GROUP, defined as 1 for study abroad program participants and 0 for on-campus program participants, was estimated. Finally, a model was estimated to test the interaction effect between TIME and GROUP to determine if students participating in the *experimental group* significantly improved their CQ compared to students participating in the summer research laboratory program. This model building procedure was completed for overall CQ, and separate interaction models were estimated for each CQ domain.

Final Base Model of Change:

Level 1:

$$CQ_{ti} = \beta_{0i} + \beta_{1i}(TIME_t) + e_{ti}$$

Level 2:

$$\beta_{0i} = \gamma_{00} + \gamma_{01}(GROUP_i) + \mu_{0i}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}(GROUP_i) + \mu_{1i}$$

Further analyses were conducted among the students in the *experimental group*. The same model building procedures, starting with a unconditional means model and subsequently including level-1 variables, followed by level-2 variables and finally any cross-level interactions, were followed to examine the association between program location (LOC), cultural goals score (GOAL), reflective journal scores (JOURNAL) and students' cultural mentor (MENT), on CQ development. A separate interaction model was estimated for each of the four CQ domains.

### Final Cross-level Interaction Models:

Level 1:

$$CQ_{ti} = \beta_{0i} + \beta_{1i}(\text{TIME}_t) + e_{ti}$$

Level 2:

$$\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{LOC}_i) + \mu_{0i}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}(\text{LOC}_i) + \mu_{1i}$$

Level 1:

$$CQ_{ti} = \beta_{0i} + \beta_{1i}(\text{TIME}_t) + e_{ti}$$

Level 2:

$$\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{GOAL}_i) + \mu_{0i}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}(\text{GOAL}_i) + \mu_{1i}$$

Level 1:

$$CQ_{ti} = \beta_{0i} + \beta_{1i}(\text{TIME}_t) + e_{ti}$$

Level 2:

$$\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{JOURNAL}_i) + \mu_{0i}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}(\text{JOURNAL}_i) + \mu_{1i}$$

Level 1:

$$CQ_{ti} = \beta_{0i} + \beta_{1i}(\text{TIME}_t) + e_{ti}$$

Level 2:

$$\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{MENT}_i) + \mu_{0i}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}(\text{MENT}_i) + \mu_{1i}$$

## Study 2

### Overview

These data come from a quasi-experimental study comparing the results of an intensive university program comprising an on-campus cultural training course followed by either a 3- or 6-week study abroad experience. Data was collected during the 2018 spring and summer semesters. Students in the 3-week study abroad program traveled throughout France, Italy, and Switzerland, while students in the 6-week program traveled throughout Japan. The purpose of this study is to compare the CQ development of students who studied abroad in three countries for 3-weeks or one country for 6-weeks. To examine any association, undergraduate students' CQ was measured twice: before participation in the on-campus cultural training program and after completing the study abroad experience. For students in both the 3- and 6-week study abroad programs, CQ was compared to a comparison control group, which comprised students who participated in a summer research laboratory program that did not focus on cultural development. Multilevel modeling building estimates students' CQ development. The Purdue University Institutional Review Board approved all study procedures.

### Research Questions

After undergraduate students complete an on-campus cultural training course, how long must they study abroad (3- or 6-weeks) to experience CQ development? Furthermore, are there any student-level factors (age, gender identity, ethnicity, year in school, previous overseas experience, and grade point average) associated with CQ development?

### Participants

This study contains data from three cohorts: two experimental groups and one comparison control group. The *experimental groups* participated in an on-campus cultural training course followed by either a 3- or 6-week study abroad experience, while the *comparison control group* participated in an on-campus summer research program. Participation in either cohort was open to students of any major and classification.

All students enrolled in both programs were approached to participate in the study. Study participation did not impact students' ability to participate in either program. Consenting students received a study ID, and after data collection ended, the responses were de-identified.

### ***Design of the Experimental Group***

#### *Cultural Training Course*

Students enrolled in either the 3- or 6-week study abroad experience participated in a shared cultural training course. The course occurred on campus and met weekly for 10, 3-hour sessions. The course's lectures and assignments comprised four cultural development domains: cultural self-awareness, cultural other awareness, managing emotions, and bridging cultural divides (Vande Berg, 2016). Except for some culture-specific content, each group received the same lectures and assignments except for one difference. Students in the 6-week program completed an extra online learning module (*MyCQ*). This module integrated personalized interactive exercises, quizzes, and cultural examples based on students' Time 1 CQ. It took two and a half hours to complete.

The course taught students how to write reflective journal entries and provided guidance on how to conduct an interviewing. The reflective journaling assignments required students to examine past cultural interactions while focusing on what went right, what went wrong, and how each party's cultural values and communication styles impacted the interaction. Based on these reflections, the students created an action plan for bridging cultural divides when they arise. Additionally, each student conducted 2 interviews with someone who held a passport from a country different than their own. Afterward, students wrote a reflective journal about their interview, during which students made connections between the course material and the interview experience while discussing the application to the study abroad.

Moreover, the course used experiential learning activities based on the see one, do one, teach one concept, which closely aligns with SLT. This teaching technique was used to facilitate instruction to multiple students while simultaneously developing students into independent actors. For example, during one class session, students completed a cultural round robin (CITE). During the first phase of the activity (see one: *attention*; cognitive CQ), students learn a new cultural concept, which aligns with the *attention* phase in the SLT. Then, throughout the second phase (do

one; *retention*; metacognitive CQ), students have a brief amount of time to commit the new concept to memory. Finally, during the third phase (teach one: *retention*; behavior CQ), students pair up with several other students to teach the newly learned concepts to one another.

### *Study Abroad Experiences*

Students in the 3- and 6-week programs received structured and semi-structured time to engage with local people and explore the host nation's culture. Structured activities included visits to historical sites, geographical sites, and local community events. Other activities included "drop off" assignments, which required students to meet and interact with local people. Several times a week, students reflected on these structured and unstructured activities in a journal. Mentors and students met weekly for one-on-one meetings to review reflective journals and discuss ways the cultural mentor could support the student. All students wrote a final reflection paper after the study abroad experience.

Both the 3- and 6-week study abroad programs provided students with an opportunity to apply their cultural knowledge, skills, and strategies in real-world scenarios. The course requirements and assignments were as identical as possible despite cultural and language differences between the program locations. During the 3-week program, students traveled every 3-4 days to new metropolitan areas or remote towns throughout France, Italy, and Switzerland. Likewise, students in the 6-week program traveled every 3-4 days to a new location spanning Okinawa's southern territory, through Tokyo, and into the northern region of Hokkaido. Frequent travel to multiple destinations served to highlight the complexities of a person's lived cultural experience.

### *Design of the Comparison Control Group*

Each student in the *summer research laboratory program* received a \$2,500 tuition scholarship to complete 9 credit hours of coursework and 140 hours of research in a faculty-led research laboratory. They completed the CQ before and after the 12-week summer program. Similar to the experimental group, these students received a summary of their CQ pre-assessment; however, they received no cultural training or mentoring.



## Measures

The Cultural Intelligence Center, an innovative training and consulting company that provides CQ assessments to groups and individuals, collected the data. The Cultural Intelligence Center administered the Cultural Intelligence Scale (CQS) (Ang et al., 2007), a brief questionnaire measuring CQ across four validated (Ward et al., 2009) domains: motivation, cognitive, metacognitive, and behavior CQ. The CQS has construct validity (Matsumoto & Hwang, 2013), convergent, and discriminative validity (AL-Dossary, 2016; Moyano et al., 2015; Ward et al., 2009), and predictive validity (Matsumoto & Hwang, 2013).

The CQS asks students to self-assess on questions related to the four CQ domains. For example, *'I am confident that I can socialize with locals in a culture that is unfamiliar to me.'* (motivation); *'I know the cultural values and religious beliefs of other cultures.'* (cognitive); *'I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.'* (metacognitive); and *'I change my verbal behavior (e.g., accent, tone) when a cross-cultural interaction requires it.'* (behavior).

Student demographic variables (age, ethnicity, gender identity, year in school, previous overseas experience, and grade point average) were collected.

## Statistical Analysis Plan

Using the mixed-effects multilevel regressions function in Stata version 15.1, multivariate multilevel models of change were estimated to examine the relationship between undergraduate students' CQ over time and if their participation in either a 3- or 6-week study abroad program. This analysis contains estimated coefficients for a two-level hierarchical linear structure containing student responses collected at two time points nested within each student. At level 1, this dataset includes Time as a dummy variable, coded as 0=Time 1 and 1=Time 2. At level 2, this dataset contains unchanging student characteristics: experimental condition (PROG), age, ethnicity, gender identity (GI), year in school (YIS), previous overseas experience (POE), and grade point average (GPA).

The final model was built through a series of steps. First, an unconditional means model was estimated, which accounted for the intercept but contained no predictors. Next, a model was built by including a linear slope parameter of Time as both a fixed and random effect. Then, a

model was constructed by including all level 2 variables as fixed effects. The final model incorporated a cross-level interaction effect between student CQ from Time 1 to Time 2 and the experimental condition, PROG (3- vs. 6-weeks). This process of model building was repeated for each of the four CQ domains.

#### Final Base Model of Change

Level 1:

$$CQ_{ti} = \beta_{0i} + \beta_{1i} (TIME_t) + e_{ti}$$

Level 2:

$$\beta_{0i} = \gamma_{00} + \gamma_{01} (PROG_i) + \gamma_{02} (AGE_i) + \gamma_{03} (GI_i) + \gamma_{04} (ETHNICITY_i) + \gamma_{05} (YIS_i) + \gamma_{06} (POE_i) + \gamma_{07} (GPA_i) + \mu_{0i}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11} (PROG_i) + \mu_{1i}$$

Additionally, an interaction model was built to compare students participating in either experimental group (3- and 6-week programs) to the on-campus summer scholars by estimating a model that included Time as a fixed effect and a cross-level interaction between Time and cohort participation. This model had zero predictors due to a lack of demographic data on the comparison group. An interaction model was estimated for each of the four CQ domains. Furthermore, an interaction model was created to test for any differences in CQ development by the cultural mentor (MENT). A final interaction model tested the moderating effects of the number of countries (NOC) visited on each program.

#### Final Group Development Comparison Models

Level 1:

$$CQ_{ti} = \beta_{0i} + \beta_{1i}(TIME_t) + e_{ti}$$

Level 2:

$$\beta_{0i} = \gamma_{00} + \gamma_{01}(GROUP_i) + \mu_{0i}$$

$$\beta_{1i} = \gamma_{00} + \gamma_{11}(GROUP_i) + \mu_{1i}$$

Level 1:

$$CQ_{ti} = \beta_{0i} + \beta_{1i}(TIME_t) + e_{ti}$$

Level 2:

$$\beta_{0i} = \gamma_{00} + \gamma_{01}(MENT_i) + \mu_{0i}$$

$$\beta_{1i} = \gamma_{00} + \gamma_{11}(MENT_i) + \mu_{1i}$$

Level 1:

$$CQ_{ti} = \beta_{0i} + \beta_{1i}(TIME_t) + e_{ti}$$

Level 2:

$$\beta_{0i} = \gamma_{00} + \gamma_{01}(NOC_i) + \mu_{0i}$$

$$\beta_{1i} = \gamma_{00} + \gamma_{11}(NOC_i) + \mu_{1i}$$

## CHAPTER 3: RESULTS

### Study 1

Overall, 115 undergraduate students participated in Study 1. Among these students, 53 (46.17%) were in the *experimental group*, and 62 (53.83%) were in the *comparison control group*. In the *experimental group*, 34 (64.15%) were female, 36 (67.12%) were White, and most were from the college of health and human sciences. In the *comparison control group*, 36 were female (58.06%), and 38 were White (61.29%). Most students came from the college of engineering. See Table 4 for full student demographic information.

Study 1 aimed to determine the effects of a cultural training program combined with a study abroad experience on undergraduate students' CQ development. For students in the *experimental group*, mean CQ increased from Time 1 to Time 2 across all four domains. For example, group means in motivation CQ increased slightly from 5.86 (0.66) to 5.98 (0.56), cognitive CQ increased from 3.90 (1.23) to 4.80 (0.85), metacognitive CQ increased from 5.36 (0.77) to 6.16 (0.58), and behavior CQ increased from 4.77 (1.03) to 5.75 (0.76). Comparatively, group means for the *comparison control group* decreased in motivation CQ from 5.64 (0.78) to 5.56 (0.90) while increasing in cognitive CQ from 4.40 (1.09) to 4.53 (1.19), metacognitive CQ from 5.09 (0.83) to 5.39 (0.88), and behavior CQ from 4.45 (1.05) to 4.57 (1.17). See Table 5 for pre-post group CQ means.

Furthermore, Cohen's *d* was calculated to determine the effect sizes for each study group's CQ development. For the experimental group, CQ development's effect sizes were small for motivation, medium for cognitive, and large for metacognitive and behavior CQ. For the comparison control group, the effect sizes were very small for motivation, cognitive and metacognitive CQ, and medium for metacognitive CQ. See Table 6 for the full results of the effect size calculations.

Table 4. Student Demographics

	Study Abroad (n=53)	Comparison (n=62)
Gender		
Female	34 (64.15%)	36 (58.06%)
Male	19 (35.85%)	26 (41.94%)
Ethnicity		
Asian	11 (20.75%)	9 (14.52%)
Black	2 (3.77%)	3 (4.84%)
LatinX	1 (1.89%)	4 (6.45%)
More than 1 Race Reported	2 (3.77%)	5 (8.06%)
Other	1 (1.89%)	3 (4.84%)
White	36 (67.92%)	38 (61.29%)
College		
Engineering	4 (7.55%)	21 (33.87%)
Health and Human Sciences	36 (67.92%)	9 (14.52%)
Liberal Arts	5 (9.43%)	3 (4.84%)
Management	1 (1.89%)	2 (3.23%)
Other	7 (13.2%)	27 (43.54%)

Table 5. Cultural Intelligence Means and Standard Deviation by Group

	Study Abroad M (SD)			Comparison M (SD)			Difference in M Growth*
	T1	T2	Growth	T1	T2	Growth	
Motivation	5.86 (0.66)	5.98 (0.56)	+0.12	5.64 (0.78)	5.56 (0.90)	-0.08	+0.20
Cognitive	3.90 (1.23)	4.80 (0.85)	+0.90	4.40 (1.09)	4.53 (1.19)	+0.13	+0.77
Metacognitive	5.36 (0.77)	6.16 (0.58)	+0.80	5.09 (0.83)	5.39 (0.88)	+0.30	+0.50
Behavior	4.77 (1.03)	5.75 (0.76)	+0.98	4.45 (1.05)	4.57 (1.17)	+0.12	+0.86

Note: \*Improvement of the Study Abroad group compared to the Comparison group.

Table 6. Study 1 Effect Sizes

Effect Size (Cohen's d)		
Intercultural Development		Comparison
Motivation	0.200	0.095
Cognitive	0.851	0.114
Metacognitive	1.174	0.351
Behavior	1.084	0.108
Note: very small=0.1, small=0.2, medium=0.5, large=0.9, very large=1.2		

A series of multilevel models were estimated to answer RQ 1.1, which aimed to examine the differences in CQ development between the *experimental* and *comparison control groups* were significant (See Table 7 for the model building procedure that compared the overall CQ development of the two study groups). The unconditional means model reveals that 56.0% of the CQ variance was attributable to between-group differences, while 44.0% of the variance was attributable to within-group differences. Across the study, Time was a significant fixed effect ( $p < .001$ ), indicating that students' CQ grew by 0.39 points on average, regardless of the study group. To answer the primary research question, a cross-level interaction was estimated to examine Time's linear effect by study group. The interaction model results were significant ( $p < .001$ ), indicating that students in the experimental group increased their overall CQ by 0.58 points on average compared to students in the comparison control group.

Table 7. Linear Growth Model for Cultural Intelligence over Time

	Unconditional (SE)	Level 1 (SE)	Level 2 (SE)	Interaction (SE)
<i>Fixed Effects</i>				
Time		.039*	0.39*	0.12
<u>Program Characteristics</u>				
Group			0.37*	0.08
Time*Group				0.58*
Intercept	5.12*	4.93*	4.76*	4.89*
<i>Random Effects</i>				
Intercept Variance	0.34*	0.38*	0.35*	0.37*
Time		0.08		
Residual Variance	0.27*	0.20*	0.20*	0.16*
ICC	0.56			
AIC	504.7	471.6	465.6	441.4

Note: \*p<.05

Moreover, a series of interaction models were estimated for each CQ domain to determine if the linear growth differences over time between the *experimental* and *comparison control groups* were significant. Motivation CQ decreased by .07 points among all study participants. This decrease is most likely due to the low growth among the *experimental group* and negative development among the *comparison control group*. The interaction model indicated no statistically significant difference in motivation CQ development ( $p=0.08$ ) across study groups. However, additional models for the remaining CQ domains found statistically significant differences across groups. On average, the *experimental group* increased their cognitive CQ by 0.76 points more than the *experimental group*. Statistically significant differences were also observed, with models estimating an average increase of 0.49 points in metacognitive CQ and 0.87 points in behavior CQ among the *experimental group* compared to the *comparison control group* (See Table 8 for the interaction models by CQ domain). Furthermore, to answer RQ1.2, multilevel modeling was used to examine the effects of study abroad program location, reflective journaling criteria, setting cultural goals, and a student's cultural mentor on linear CQ development for each domain.

Table 8. Linear Growth Model for Cultural Intelligence over Time by CQ Domain

	Motivation Interaction (SE)	Cognitive Interaction (SE)	Metacognitive Interaction (SE)	Behavior Interaction (SE)
<i>Fixed Effects</i>				
Time	-0.07 (0.74)	0.13 (0.12)	0.31 (0.09)*	0.12 (0.12)
Group	0.23 (0.14)	-0.50 (0.21)*	0.28 (0.15)	0.31 (0.19)
Group*Time	0.19 (0.11)	0.76 (0.20)*	0.49 (0.13)*	0.87 (0.18)*
Intercept	5.64 (0.09)*	4.40 (0.14)*	5.09 (0.10)*	4.45 (0.13)*
<i>Random Effects</i>				
Intercept Variance	0.39 (0.06)*	0.77 (0.14)*	0.37 (0.07)*	0.57 (0.11)*
Residual Variance	0.17 (0.02)*	0.45 (0.06)*	0.24 (0.03)*	0.47 (0.06)*

Note: \*p<.05

### Study Abroad Location

For study abroad location, time was a significant fixed effect for cognitive ( $p<.001$ ), metacognitive ( $p<.001$ ), and behavior CQ ( $p<$ ), but not for motivation CQ ( $p=.557$ ). Furthermore, program location was significant for cognitive ( $p<.001$ ) and behavior CQ ( $p<.001$ ), but not for motivation ( $p=.472$ ) and metacognitive CQ ( $p=.129$ ). Results from the interaction test show a significant effect for cognitive ( $p=.015$ ), metacognitive ( $p=.037$ ), and behavior CQ (0.37), but not for motivation CQ ( $p=.957$ ). These findings suggest that differences in program location help explain some variation in students' cognitive metacognitive and behavior CQ development (See Table 9).

Table 9. Cross-level Interaction between Time and Study Abroad Location by CQ Domain

	Motivation Interaction (SE)	Cognitive Interaction (SE)	Metacognitive Interaction (SE)	Behavior Interaction (SE)
<i>Fixed Effects</i>				
Time	0.11 (0.18)	1.62 (0.33)*	1.15 (0.19)*	1.49 (0.27)*
Location	0.05 (0.06)	0.53 (0.09)*	0.11 (0.07)	0.29 (0.09)*
Location*Time	.003 (0.06)	-0.28 (0.12)*	-0.14 (0.07)*	-0.19 (0.09)*
Intercept	5.74 (0.18)*	2.52 (0.28)*	5.08 (0.21)*	3.99 (0.26)*
<i>Random Effects</i>				
Intercept Variance	0.21 (0.06)	0.28 (0.12)	0.26 (0.07)	0.36 (0.11)

Note: \*p<.05

### Reflective Journaling

Students' scores for each of the reflective journal criteria (accuracy, clarity, depth, breadth, academic enhancement, and personal growth) were dichotomized at the middle value. All students received a score of 1-2 (low) or 3-4 (high) for each of the first five criteria. Students received a score of 1-3 (low) or 4-6 (high) for the last two criteria. Seventeen students (32.1%) were categorized as low, and 36 (67.9%) students were classified as high in accuracy; 16 students (30.2%) were low and 37 (69.8%) students were high in clarity; 21 students were low and 32 (60.4%) students were high in the depth; 16 (43.4%) were low, and 30 (56.6%) were high in depth; 30 (30.2%) were low, and 37 (69.8%) were high in fairness. Furthermore, in academic enhancement, 58 (55.7%) were low, and 46 (44.2%) were high; and in personal growth, 22 (41.8%) were low, and 31 (58.5%) were high (See Table 10).



Table 10. Reflective Journal Scores Dichotomized as Low or High

	Low Score (1-3)	High Score (4-6)
Accuracy	17 (32.1%)	36 (67.9%)
Clarity	16 (30.2%)	37 (69.8%)
Depth	21 (39.6%)	32 (60.4%)
Breadth	16 (43.4%)	30 (56.6%)
Fairness	30 (30.2%)	37 (69.8%)
Academic Enhancement	30 (43.4%)	23 (56.6%)
Personal Growth	22 (41.8%)	31 (58.5%)

For all seven reflective journal criteria (accuracy, clarity, depth, breadth, academic enhancement, and personal growth), Time was significant as a fixed effect for cognitive, metacognitive, and behavior CQ, but not for motivation CQ. This indicates statistically significant individual variation in cognitive, metacognitive, and behavior CQ development among students in the *experimental group*. These results are consistent with the null findings for motivation CQ development and positive associations for cognitive, metacognitive, and behavior CQ (See Tables 7 and 8). Furthermore, the results indicate that none of the reflective journal criteria were associated with CQ at either time point.

To determine if students in the low or high reflection groups experienced linear CQ development at statistically significant rates, separate interaction models were fit for each criterion. The interaction models indicated no significant impact of low versus high reflective journal groupings on CQ development. Findings persisted for all seven reflective journal criteria across all four CQ domains (See Table 11).

Table 11. Cross-level Interaction between Journal Criteria and Time by CQ Domain

	Motivation Interaction (SE)	Cognitive Interaction (SE)	Metacognitive Interaction (SE)	Behavior Interaction (SE)
<i>Fixed Effects</i>				
Journal Criteria				
Time	0.05 (0.14)	0.88 (0.26)*	0.66 (0.15)*	0.90 (0.21)*
<u>Journal Criteria</u>				
<u>Accuracy</u>				
Time	0.05 (0.14)	0.88 (0.26)*	0.66 (0.15)*	0.90 (0.21)*
Accuracy	-0.06 (0.20)	-0.25 (0.37)	-0.24 (0.23)	-0.24 (0.31)
Accuracy*Time	0.10 (0.22)	0.09 (0.32)	0.22 (0.18)	0.15 (0.26)
Accuracy Intercept	5.91 (0.16)	4.05 (0.31)	5.53 (0.19)	4.92 (0.26)*

Table 11. Continued

<u>Clarity</u>				
<u>Time</u>	0.15 (0.15)	0.69 (0.27)*	0.69 (0.16)*	0.87 (0.22)*
Clarity	0.17 (0.20)	-0.34 (0.37)	0.03 (0.24)	-0.01 (0.32)
Clarity*Time	-0.04 (0.17)	0.36 (0.32)	0.15 (0.19)	0.19 (0.26)
Clarity Intercept	5.75 (0.17)*	4.13 (0.31)*	5.35 (0.19)	4.77 (0.27)*
<u>Depth</u>				
<u>Time</u>	0.08 (0.13)	0.83 (0.24)*	0.70 (0.14)*	0.91 (0.19)*
Depth	-0.17 (0.19)	-0.34 (0.35)	-0.15 (0.22)	-0.17 (0.29)
Depth*Time	0.06 (0.16)	0.19 (0.30)	0.18 (0.18)	0.16 (0.24)
Depth Intercept	5.97 (0.15)*	4.09 (0.27)*	5.46 (0.17)*	4.87 (0.23)*
<u>Breadth</u>				
<u>Time</u>	0.09 (0.12)	0.90 (0.23)*	0.70 (0.13)*	0.92 (0.18)*
Breadth	-0.13 (0.18)	-0.01 (0.34)	0.03 (0.22)	-0.00 (0.29)
Breadth*Time	0.05 (0.16)	0.07 (0.29)	0.18 (0.17)	0.15 (0.24)
Breadth Intercept	5.94 (0.14)*	3.89 (0.26)*	5.35 (0.16)*	4.76 (0.22)
<u>Fairness</u>				
<u>Time</u>	0.02 (0.15)	0.67 (0.27)*	0.84 (0.16)*	0.89 (0.22)*
Fairness	-0.03 (0.20)	-0.19 (0.37)	0.02 (0.24)	-0.00 (0.32)
Fairness*Time	0.14 (0.17)	0.38 (0.32)	-0.05 (0.19)	0.16 (0.26)
Fairness Intercept	5.89 (0.17)*	4.02 (0.32)*	5.35 (0.19)*	4.76 (0.27)*
<u>Academic Enhancement</u>				
<u>Time</u>	0.08 (0.10)	0.89 (0.19)*	0.78 (0.12)*	0.87 (0.16)*
Academic Enhancement	-0.19 (0.18)	-0.08 (0.34)	-0.23 (0.21)	-0.32 (0.28)
Academic Enhancement*Time	0.75 (0.16)	0.09 (0.29)	0.54 (0.17)	0.32 (0.24)
Academic Enhancement Intercept	5.96 (0.12)*	3.92 (0.23)*	5.47 (0.14)*	4.90 (0.19)*
<u>Personal Growth</u>				
<u>Time</u>	0.58 (0.12)	0.99 (0.23)*	0.74 (0.14)*	0.93 (0.19)*
Personal Growth	-0.05 (0.19)	-0.25 (0.35)	-0.36 (0.21)	-0.45 (0.28)
Personal Growth*Time	0.09 (0.16)	-0.97 (0.29)	0.11 (0.18)	0.13 (0.24)
Personal Growth Intercept	5.89 (0.14)*	4.03 (0.26)*	5.58 (0.16)*	5.03 (0.22)*

Note: \*p&lt;.05

## Cultural Goals

While working with their cultural mentor during the spring semester, students used their personalized development plan (based on Time 1 CQS) to set personal or culture-related goals. Students were not required to select a specific number of personal or culture-related goals; thus, there is a wide variation in individual students' number of cultural goals. For each CQ domain, students were placed into one of two groups. Students who set a specific CQ domain goal were put into a yes goal or no goal group. This process was repeated for each CQ domain. 14 students (25%) set a motivation CQ goal, 25 students (46.15%) developed a cognitive CQ goal, 16 students (28.85%) set a metacognitive CQ goal, and 24 students (44.23%) set a behavior CQ goal (See Table 12).

Table 12. Cultural Goal Dichotomized as Yes and No

Goal	Ye	No
Motivation	14 (26.4%)	39 (73.6%)
Cognitive	25 (47.2%)	28 (52.8%)
Metacognitive	16 (30.2%)	37 (69.8%)
Behavior	24 (45.3%)	29 (54.7%)

Furthermore, students were dichotomized into two groups depending on the total number of cultural goals they set to determine if students who set more culture-related goals experienced an increase in CQ development. A total of 26 students (24.52%) set no cultural goal, 34 students (32.08%) had 1 goal, 26 students (24.53%) set 2 goals, 16 students (15.09%) set 3 goals, and 4 students (3.77%) set 4 goals (see Table 13).

Table 13. Frequency of Total Cultural Goal Score

Number of Goals	n (%)
0	13 (24.5%)
1	17 (32.0%)
2	13 (24.5%)
3	8 (15.0%)
4	2 (3.7%)

A series of interaction models that estimated the relationship between setting a CQ domain-specific goal and a students' development in that corresponding CQ domain were produced (See Table 14). For all four CQ domains, the multilevel models indicate no significant association between setting a CQ specific goal and a students' CQ at either time point. To determine if setting a CQ domain-specific goal was associated with students' linear CQ development over time, an interaction model was estimated for each CQ domain. Interaction model results indicate that setting a CQ domain-specific goal did not have a statistically significant impact on a corresponding increase in that CQ domain.

Table 14. Interaction between Cultural Goals and Corresponding CQ Domains

	Motivation Interaction (SE)	Cognitive Interaction (SE)	Metacognitive Interaction (SE)	Behavior Interaction (SE)
<i>Fixed Effects</i>				
Time	0.05 (0.14)	0.72 (0.24)*	0.76 (0.13)*	0.87 (0.19)*
<u>Goals</u>				
CQ Domain	-0.06 (0.20)	0.09 (0.30)	-0.02 (0.22)	0.06 (0.12)
CQ Domain*Time	0.10 (0.22)	0.04 (0.31)	-0.09 (0.19)	0.08 (0.12)
Intercept	5.91 (0.16)	4.16 (0.23)*	5.23 (0.15)*	4.68 (0.23)*
<i>Random Effects</i>				
Intercept Variance	0.21 (42.3)	0.46 (0.15)	0.26 (0.07)	0.50 (61.7)

Note: \*p<.05

Moreover, students' goal-setting was used to calculate a total goal score that ranged from 0 (no CQ domain-specific set goals) to 4 (four CQ domain-specific set goals). Interaction models were fit to determine if the number of goals each student set was associated with their linear CQ development. The model estimates revealed that Time was a significant fixed effect for cognitive ( $p < .001$ ), metacognitive ( $p < .001$ ), and behavior CQ ( $p < .001$ ), but not for motivation CQ ( $p = .686$ ). These findings are consistent with the previous model estimates. Additional model estimates examined an interaction effect between a students' total number of goals and Time. These models indicate that goal setting was not associated with CQ development in motivation ( $p = .484$ ), cognitive ( $p = .677$ ), metacognitive ( $p = .507$ ), or behavior ( $p = .436$ ) CQ domains (See Table 15).

Table 15. Total Cultural Goal and Time Interaction by CQ Domain

	Motivation Interaction (SE)	Cognitive Interaction (SE)	Metacognitive Interaction (SE)	Behavior Interaction (SE)
<i>Fixed Effects</i>				
Time	0.05 (0.12)	0.87 (0.24)*	0.86 (0.14)*	0.87 (0.19)*
<u>Goals</u>				
Number of Goals	0.01 (0.08)	-0.06 (0.15)	0.12 (0.09)	0.06 (0.12)
Number*Time	0.05 (0.07)	0.02 (0.13)	-0.05 (0.07)	0.08 (0.12)
Intercept	5.85 (0.14)*	3.99 (0.27)	5.19 (0.17)*	4.68 (0.23)*
<i>Random Effects</i>				
Intercept Variance	0.20 (41.4)	0.82 (62.7)	0.25 (36.8)	0.50 (61.7)

Note: \* $p < .05$

## Cultural Mentors

Multilevel models of change were estimated by comparing students' linear development depending on their cultural mentors (See Table 16). The results of the multilevel models of change indicate that for cognitive ( $p < .001$ ), metacognitive ( $p < .001$ ), and behavior CQ ( $p < .001$ ), Time was significant as a fixed effect; however, it was not for motivation CQ ( $p = .971$ ). This finding highlights that the cultural mentor was not associated with Time 2 CQ, which shows no difference between students assigned to different mentors. Further interaction model estimates revealed no

significant difference in motivation ( $p=.244$ ), cognitive ( $p=.814$ ), metacognitive ( $p=.389$ ), or behavior CQ ( $p=.470$ ) among students assigned to different cultural mentors (See Table 16).

Table 16. Cultural Mentor Effects Model by CQ Domain

	Motivation Interaction (SE)	Cognitive Interaction (SE)	Metacognitive Interaction (SE)	Behavior Interaction (SE)
<i>Fixed Effects</i>				
Time	.004 (0.12)	0.94 (0.24)*	0.70 (0.14)*	0.88 (0.19)*
<u>Program Characteristics</u>				
Cultural Mentor	-.001 (0.08)	0.29 (0.15)	.007 (0.09)	0.17 (0.13)
Cultural Mentor*Time	0.09 (0.08)	-0.04 (0.16)	0.08 (0.09)	0.09 (0.13)
Intercept	5.86 (0.13)*	3.56 (0.23)*	5.35 (0.14)*	4.56 (0.19)*
<i>Random Effects</i>				
Intercept Variance	0.21 (0.58)	0.44 (0.15)	0.26 (0.07)	0.39 (0.12)

Note: \* $p<.05$

## Study 2

Students who participated in the cultural training course and either the 3- or 6-week study abroad program increased their CQ from Time 1 to Time 2 relative to a comparison group ( $p < .001$ ). Of the 51 students who participated in the cultural training course, 26 (50.9%) were in the 3-week study abroad program, and 25 (49.1%) were in the 6-week program. Among the 26 students in the 3-week program, 10 (38.46%) were 19 years of age or younger; 4 (15.38%) were students of color; 19 (73.07%) were female; 19 (73.07%) were going overseas for the first time; 12 (46.15%) were in their first two years of college; 13 (50.00%) held a GPA at or above a 3.5/4.0; 15 (57.69%) were classified as in-state for tuition purposes; 11 (42.30%) were from a health-based college. Comparatively, among the 25 students in the 6-week program, 10 (38.46%) were 19 years of age or younger; 5 (20.00%) were students of color; 7 (28.00%) were female; 15 (60.00%) were going overseas for the first time; 11 (44.00%) were in the first two years of college; 6 (24.00%) held a GPA at or above of 3.5/4.0; 11 (44.00%) were considered in-state for tuition purposes; 5 (20.00%) were from a health-based college. For additional demographic information, see Table 17.

Time 1 and Time 2 CQ means and standard deviations for students in both the 3- and 6-week study abroad programs can be found in Table 18. Among the 3-week group, motivation CQ means increased from 5.53 (0.24) to 6.00 (0.69); cognitive CQ means increased from 3.46 (0.49) to 5.10 (0.36); metacognitive CQ increased from 4.84 (0.40) to 5.86 (0.26); and behavior CQ increased from 4.09 (0.49) to 5.55 (0.36). Among the 6-week group, motivation CQ means increased from 5.77 (0.18) to 6.16 (0.26); cognitive CQ means increased from 4.02 (0.34) to 5.26 (0.36); metacognitive CQ increased from 5.47 (0.29) to 5.97 (0.32); and behavior CQ increased from 4.61 (0.54) to 6.06 (0.38). Effect sizes for the 3- and 6-week study abroad groups can be found in Table 19. For the 3-week group, the effect size for motivation CQ was large and very large for cognitive, metacognitive, and behavior CQ. For the 6-week group, the effect sizes were very large for all four domains.



Table 17. Student Demographics

	3-Weeks (n=26)	6-Weeks (n=62)
Age		
$\leq 19$	10 (%)	10 (%)
20	12 (%)	5 (%)
$\geq 21$	4 (%)	4 (%)
Race/Ethnicity		
LatinX	1 (%)	1 (%)
Black	0 (%)	1 (%)
White	22 (%)	14 (%)
Asian	2 (%)	2 (%)
Two or More	1 (%)	1 (%)
Sex		
Female	19 (%)	7 (%)
Male	7 (%)	13 (%)
Non-binary	0 (%)	1 (%)
1 <sup>st</sup> Time Overseas?		
Yes	19 (%)	15 (%)
No	7 (%)	6 (%)
Year in School		
Freshman	6 (%)	7 (%)
Sophomore	6 (%)	4 (%)
Junior	11 (%)	7 (%)
Senior	3 (%)	2 (%)
GPA		
$\leq 2.5$	1 (%)	3 (%)
2.5-3.49	12 (%)	11 (%)
$\geq 3.5$	13 (%)	6 (%)
Residence Status		
In-State	15 (%)	11 (%)
Out-of-State	11 (%)	9 (%)
College		
Health and Human Sciences	11 (%)	5 (%)
Pharmacy	2 (%)	0 (%)
Engineering	4 (%)	3 (%)
Science	3 (%)	3 (%)
Other	6 (%)	9 (%)

Table 18. Cultural Intelligence Means and Standard Deviation by Time Abroad

	Study Abroad M (SD)			Comparison M (SD)			Difference in M Growth*
	T1	T2	Growth	T1	T2	Growth	
Motivation	5.53 (0.24)	6.00 (0.69)	+0.47	5.77 (0.18)	6.16 (0.26)	+0.39	+0.08
Cognitive	3.46 (0.49)	5.10 (0.36)	+1.64	4.02 (0.34)	5.26 (0.36)	+1.24	+0.40
Metacognitive	4.84 (0.40)	5.86 (0.26)	+1.02	5.47 (0.29)	5.97 (0.32)	+0.50	+0.52
Behavior	4.09 (0.49)	5.55 (0.36)	+1.46	4.61 (0.54)	6.06 (0.38)	+1.45	+0.01

Note: \*Improvement of the Study Abroad group compared to the Comparison group.

Table 19. Study 2 Effect Sizes

Effect Size (Cohen's d)		
	3-Week	6-Week
Motivation	0.91 (large)	1.74 (very large)
Cognitive	3.81 (very large)	3.54 (very large)
Metacognitive	3.02 (very large)	1.64 (very large)
Behavior	3.39 (very large)	3.11 (very large)
Note: very small=0.1, small=0.2, medium=0.5, large=0.9, very large=1.2		

## Cultural Intelligence

The same model building procedure was followed to compare the development of the 3-week and 6-week study abroad groups across all four CQ domains. While the results are presented together, separate tables were created to display each CQ domain's results. Model building estimates are found in Table 20 for motivation CQ, Table 21 for cognitive CQ, Table 22 for metacognitive CQ, and table 23 for behavior CQ.

The procedure began by estimating an unconditional means model. The unconditional means models indicated that throughout the study, students had a motivation CQ of 5.87, cognitive CQ of 4.49, metacognitive CQ of 5.59, and behavior CQ of 5.12, regardless of their participation in the 3-week or 6-week program. The within-student variance was large for all four CQ domains and explained most of the effect over time, which may be caused by the large effect sizes (See Tables 6 and 19).

Next, a level-one predictor modeling, including Time as a fixed effect, was estimated. The level-one predictor models observed a significant effect of Time ( $p < .001$ ), indicating an average increase of 0.39 points in motivation CQ, 1.45 points in cognitive CQ, 0.73 points in metacognitive CQ, and 1.36 points in behavior CQ. Then, a level-two predictor model was estimated that incorporated Prog, Age, Ethnicity, YIS, GI, POE, and GPA. No statistically significant level-two predictor estimates were observed for motivation and cognitive CQ. However, for metacognitive and behavior CQ, Prog was significantly associated with CQ, indicating that the 3-week group had significantly lower metacognitive and behavior CQ scores at Time 1. None of the other level-two predictors were associated with metacognitive or behavior CQ.

The final model incorporated a cross-level interaction effect between linear CQ development and participation in the 3-week or 6-week program. The interaction model estimates indicate no statistically significant differences in motivation, cognitive, or behavior CQ between the groups. However, the difference for metacognitive CQ was significant, with the 3-week group experiencing an average increase of 0.56 points above the 6-week group.

Table 20. Change Model for Motivation CQ

	Unconditional (SE)	Level 1 (SE)	Level 2 (SE)	Interaction (SE)
<i>Fixed Effects</i>				
Time		0.39 (0.10)*	0.38 (0.11)*	0.31 (0.15)*
<u>Student Characteristics</u>				
Program			-0.23 (0.13)	-0.30 (0.16)
Age			0.08 (0.06)	0.08 (0.06)
Ethnicity			-0.03 (0.05)	-0.03 (0.05)
Year in School			-0.06 (0.09)	-0.06 (0.09)
Sex			-0.19 (0.12)	-0.19 (0.12)
1 <sup>st</sup> Time Overseas			0.09 (0.13)	0.09 (0.13)
GPA			0.007 (0.11)	0.01 (0.11)
Time*Program				0.14 (0.21)
Intercept	5.87 (0.06)*	5.68 (0.07)*	4.51 (1.12)*	4.55 (1.13)*
<i>Random Effects</i>				
Intercept Variance	0.008 (0.05)	0.18 (26.62)	0.02 (0.04)	0.02 (0.04)
Time		0.41 (53.23)		
Residual Variance	0.33 (0.07)	0.05 (26.62)	0.27 (0.05)	0.27 (0.05)
ICC	0.025			
AIC	186.35	176.19	179.86	181.42
BIC	194.22	191.95	208.29	212.44

Note: \*p&lt;.05

Table 21. Change Model for Cognitive CQ

	Unconditional (SE)	Level 1 (SE)	Level 2 (SE)	Interaction (SE)
<i>Fixed Effects</i>				
Time		1.45 (0.16)*	1.45 (0.17)*	1.28 (0.24)*
<u>Student Characteristics</u>				
Program			-0.34 (0.20)	-0.49 (0.27)
Age			-0.02 (0.09)	-0.02 (0.09)
Ethnicity			-0.13 (0.07)	-0.13 (0.07)
Year in School			0.06 (0.15)	0.06 (0.15)
Sex			0.22 (0.19)	0.22 (0.19)
1 <sup>st</sup> Time Overseas			-0.27 (0.21)	-0.03 (0.18)
GPA			-0.03 (0.18)	-0.03 (0.18)
Time*Program				0.31 (0.33)
Intercept	4.49 (0.12)*	3.77 (0.14)*	5.17 (1.79)*	5.25 (1.79)*
<i>Random Effects</i>				
Intercept Variance	1.57e-26 (8.50e-26)	0.86 (59.98)	0.07 (0.14)	0.07 (0.11)
Time		0.98 (119.95)		
Residual Variance	1.39 (0.19)	0.17 (59.97)	0.68 (0.14)	0.67 (0.14)
ICC	1.16e-26			
AIC	326.69	277.02	271.12	272.25
BIC	334.56	292.77	299.56	303.27

Note: \*p&lt;.05

Table 22. Change Model for Metacognitive Cultural Intelligence Over Time

	Unconditional (SE)	Level 1 (SE)	Level 2 (SE)	Interaction (SE)
<i>Fixed Effects</i>				
Time		0.73 (0.14)*	0.71 (0.14)*	0.42 (0.19)*
<u>Student</u>				
<u>Characteristics</u>				
Program			-0.41 (0.16)*	-0.69 (0.21)*
Age			0.08 (0.08)	0.08 (0.09)
Ethnicity			0.03 (0.06)	0.03 (0.06)
Year in School			-0.15 (0.12)	-0.15 (0.12)
Sex			-0.11 (0.15)	-0.11 (0.15)
1 <sup>st</sup> Time Overseas			-0.31 (0.17)	-0.31 (0.17)
GPA			-0.19 (0.14)	-0.19 (0.14)
Time*Program				0.56 (0.27)*
Intercept	5.59 (0.08)*	5.23 (0.12)*	5.08 (1.44)*	5.23 (1.44)*
<i>Random Effects</i>				
Intercept	4.68e-22 (3.19e-21)	0.64 (25.56)	0.01 (0.07)	0.03 (0.07)
Variance				
Time		0.72 (51.11)		
Residual	0.71 (0.09)	0.12 (25.56)	0.49 (0.09)	0.45 (0.09)
Variance				
ICC	6.62e-22			
AIC	260.24	237.98	233.24	231.19
BIC	268.11	253.73	261.67	262.21

Note: \*p<.05

Table 23. Change Model for Behavior Cultural Intelligence Over Time

	Unconditional (SE)	Level 1 (SE)	Level 2 (SE)	Interaction (SE)
<i>Fixed Effects</i>				
Time		1.36 (0.16)*	1.37 (0.16)*	1.25 (0.24)*
<u>Student Characteristics</u>				
Program			-0.52 (0.24)*	-0.64 (0.29)*
Age			-0.02 (0.17)	-0.02 (0.17)
Ethnicity			-0.09 (0.09)	-0.09 (0.09)
Year in School			0.07 (0.17)	0.07 (0.17)
Sex			-0.07 (0.23)	-0.07 (0.23)
1 <sup>st</sup> Time Overseas			-0.24 (0.25)	-0.24 (0.25)
GPA			-0.43 (0.21)*	-0.43 (0.21)*
Time*Program				0.23 (0.33)
Intercept	5.12 (0.12)*	4.44 (0.17)*	6.11 (2.13)*	6.17 (2.13)*
<i>Random Effects</i>				
Intercept Variance	1.88e-20 (1.29e-19)	1.20 (51.18)	0.24 (0.13)	0.24 (0.13)
Time		0.91 (102.37)		
Residual Variance	1.52 (0.21)	0.19 (51.18)	0.66 (0.13)	0.65 (0.13)
ICC	1.24e-20 (0)			
AIC	338.09	291.77	285.86	287.38
BIC	345.97	307.52	314.29	318.39

Note: \*p&lt;.05

## Cultural Mentors

An interaction model was estimated to determine any group-level differences in CQ development depending on cultural mentor. These models indicate that Time was a significant fixed effect for cognitive ( $p=.004$ ) and behavior CQ ( $p=.080$ ), but not for motivation ( $p=.115$ ) and metacognitive CQ ( $p=.122$ ). Moreover, the model examined the association between cultural mentor and a students' CQ at either time point. These results suggest that all four CQ domains (motivation ( $p=.028$ ), cognitive ( $p=.021$ ), metacognitive ( $p=.039$ ), and behavior ( $p<.001$ )) were significantly associated with CQ. This indicates significant variation in students' CQ across the cultural mentor groups at Time 1.

Furthermore, a model was estimated to determine if there were statistically significant CQ development differences by cultural mentor groupings. This model revealed that there were no statistically significant observable differences in motivation ( $p=.809$ ), cognitive ( $p=.695$ ), metacognitive ( $p=.716$ ), or behavior CQ ( $p=.148$ ) development among students assigned to different cultural mentors. This finding indicates that students in either the 3- or 6-week groups increased their CQ at similar rates, regardless of their cultural mentor grouping (See Table 24).

Table 24. Cultural Mentor Effects Model by CQ Domain

	Motivation Interaction (SE)	Cognitive Interaction (SE)	Metacognitive Interaction (SE)	Behavior Interaction (SE)
<i>Fixed Effects</i>				
Time	0.45 (0.29)	1.28 (0.45)*	0.59 (0.39)	0.77 (0.44)*
<u>Program Characteristics</u>				
Cultural Mentor	-0.17 (0.07)*	-0.29 (0.13)*	-0.22 (0.11)*	-0.49 (0.14)*
Cultural Mentor*Time	-0.03 (0.12)	-0.07 (0.17)	0.05 (0.14)	0.26 (0.16)
Intercept	6.10 (0.21)*	4.52 (0.35)*	5.79 (0.29)*	5.69 (0.38)*
<i>Random Effects</i>				
Intercept Variance	0.02 (0.04)	0.11 (0.11)	0.07 (0.08)	0.29 (0.38)*

Note: \* $p<.05$



## Number of Countries

Multilevel modeling reveals that there were no significant cross-level interactions between the total number of countries visited and CQ development over time: motivation ( $p=.066$ ), cognitive ( $p=.493$ ), metacognitive ( $p=.678$ ), and behavior CQ ( $p=.882$ ). Compared to the results of the 3- and 6-week model estimates, the number of countries visited was not significantly associated with metacognitive CQ development. Together, both models' results indicate that there are some unaccounted for differences between the 3- and 6-week programs that may explain the difference in metacognitive CQ development. See Table 25 for the number of country model estimates.

Table 25. Number of Countries Visited Effects Model by CQ Domain

	Motivation Interaction (SE)	Cognitive Interaction (SE)	Metacognitive Interaction (SE)	Behavior Interaction (SE)
<i>Fixed Effects</i>				
Time	0.77 (0.24)*	1.69 (0.38)*	0.85 (0.32)*	1.31 (0.39)*
<u>Program Characteristics</u>				
Number of Countries	-0.54 (0.06)	-0.19 (0.09)	-0.19 (0.08)*	-0.30 (0.12)*
NOC*Time	-0.15 (0.08)	-0.09 (0.14)	-0.05 (0.11)	0.02 (0.14)
Intercept	5.78 (0.14)*	4.16 (0.24)*	5.63 (0.19)*	5.05 (0.28)*
<i>Random Effects</i>				
Intercept Variance	0.19 (0.05)	0.11 (0.11)	0.05 (0.08)	0.33 (0.15)

Note: \* $p<.05$

## CHAPTER 4: DISCUSSION AND CONCLUSIONS

### Combined Pedagogical Approach

The results of Study 1 and Study 2 demonstrate that a combined cultural training course and study abroad experience program can improve undergraduate students' overall, cognitive, metacognitive, and behavior CQ compared to a comparison control group. This finding supports previous work that focused on the effects of either cultural training or study abroad programs on undergraduate students' CQ development. Motivation CQ significantly improved among the *experimental group* in Study 2 but not in Study 1. Our Study 1 null finding for motivation CQ is consistent with previous work in the university setting (Buchtel, 2014; Eisenberg et al., 2013; Fischer, 2011; N. McRae et al., 2016; Varela & Gatlin-Watts, 2014). These results support previous research on the use of cultural training courses and study abroad experiences for CQ training in the university setting and provide evidence that SLT is an adequate framework for CQ research design and evaluation.

The underlying assumption of the combined program was that students would develop self-efficacy (motivation CQ), cultural knowledge and skills (cognitive CQ), and develop cultural interaction strategies (metacognitive CQ) that they could merge into effective actions (behavior CQ). The cultural training course included in-class lectures and activities and homework assignments that were all chosen to engage students learning through at least one of the SLT phases and at least one CQ domain. For example, each week of the cultural training course contained a brief lecture (*attention*; cognitive CQ) to teach students about culture-specific content related to the host country. One lecture to the 6-Week group in Study 2 taught the origin and evolution of *Giri*, the ancient Japanese concept of obligation. Students in the other study abroad programs received a cultural concept lecture related to their host culture.

Students participated in collaborative activities that incorporate multiple learning phases and CQ domains. For example, students participated in a cultural round-robin activity (*attention*, *retention*, and *reproduction* + cognitive, metacognitive, and behavior CQ). The activity resembles the “see one, do one, teach one” method for learning that is common in medicine (Curry, 2011; Custers et al., 1999; Johnston, 2006; Kotsis & Chung, 2013; Rohrich, 2006; Vozenilek et al., 2004). The cultural training course used cross-cultural interactions to further CQ development. Students

in the combined program were required to conduct 2 interviews with someone who held a passport from a country other than their own (*attention* + motivation and cognitive CQ). During the first interview, they focused on learning about the cultural values and beliefs of the interviewee. During the second interview, they focused on learning about the interviewee's perceptions of communication differences between people from the United States and their home country. Afterward, they wrote a reflective journal on the experience (*retention* and *reproduction* + metacognitive and behavior CQ). The journal assignment required students to respond to a series of questions that focused on describing what they learned from the interview, imagining how their life would be different if they had been born in that country, and demonstrating how this information can be applied to the study abroad program.

During the study abroad experiences, the students also participated in learning activities that engaged at least one of the SLT phases and at least one CQ domain. Three primary activities were used: structured visits to cultural sites (*attention* + cognitive CQ), "drop off" assignments (Maloney & Asbury, 2018) (*retention* and *reproduction* + metacognitive and behavior CQ), and reflective journaling (*retention* and *reproduction* + metacognitive and behavior CQ). For example, students in the 6-week program visited Kyoto during the annual Gion Festival, one of Japan's largest festivals for purification and pacification. During the festival, students could embed with a cultural experience to engage in *attention*, *retention*, and *reproduction* while focusing on cognitive, metacognitive, and behavior CQ. Overall, the results from this dissertation support the use of the SLT in research on CQ development.

### **Program Duration**

Further analyses compared the CQ development of the students on the 3- and 6-week programs. Between these two programs, no differences were observed in motivation, cognitive or behavior CQ; however, there was a difference in metacognitive CQ development. Students in the 3-week study abroad program developed more metacognitive CQ than their 6-week counterparts. A previous study supports this observation, finding that intercultural learning can occur on short-term (3-week), instructor-led programs (Lorenz et al., 2012). Other studies suggest that intercultural education is more effective for long-term study abroad than short-term programs due to increased exposure and opportunities to interact with locals (Dwyer, 2004; Medina-López-Portillo, 2004; Stephenson, 2002; Vande Berg et al., 2009). However, these programs don't

compare the effects of long-term study abroad to short-term, instructor-led programs. Furthermore, research has demonstrated that shorter-term programs are more effective than longer-term programs to increase metacognitive CQ (Varela & Gatlin-Watts, 2014).

One explanation for the difference in metacognitive CQ is the language barrier between students between the program locations. Students were not required to speak the foreign language of the host nation. Therefore, most students were only able to communicate with locals if they spoke English. Although students in the 6-week program spent more time abroad, they may have encountered fewer opportunities to talk with locals as English fluency was less common in many of the regions throughout Japan, and consequently, they may have experienced fewer cultural contact opportunities, which have been linked to metacognitive CQ development in other studies (Engle & Crowne, 2013; Li et al., 2013; Reichard et al., 2015; Shokef & Erez, 2008; Taras et al., 2013; Varela & Gatlin-Watts, 2014; Wood & St. Peters, 2013). Some past research has empirically linked foreign language skills with intercultural skills (Grin & Faniko, 2012), but the relationship direction is unknown. Furthermore, there is debate about the impact of foreign language proficiency on student intercultural competence (Deardorff, 2008; Norris & Steinberg, 2008). For example, a longitudinal study among American university students studying abroad indicated that there is little to no difference in intercultural development between students participating in a study abroad program in an English-speaking nation compared to those in a foreign language-speaking host country that speaks a foreign language (Norris & Steinberg, 2008).

### **Potential Moderators**

The results in Study 2 persisted when controlling for students' Time 1 CQ, age, ethnicity, gender identity, year in school, previous overseas experience, and grade point average. This finding indicates that any student can develop their CQ, regardless of their background. Only one previous study has linked background characteristics to CQ (Nel et al., 2015). They found that ethnic identity was a positive predictor of cognitive CQ development, while religious identity was a negative predictor of cognitive CQ development.

Furthermore, no cultural mentor or program location effects were observed, which indicates that students in the *experimental group* increased their CQ at similar rates regardless of which cultural mentored they were assigned or the location of their study abroad. Each student received a cultural mentor to guide them through the study abroad experience. Multiple cultural

mentors were used to distribute the work associated with providing individualized mentorship, feedback, and guidance to numerous students during a short-term study abroad. Variations in cultural mentoring could potentially impact students' CQ development; however, this study did not complete a fidelity assessment to determine if the cultural mentors interacted similarly or differently. Accordingly, determining if certain cultural mentoring behaviors were associated with CQ development was impossible with this dataset.

## **Measurements**

Furthermore, reflective journaling was incorporated into the study abroad experience to help students connect the course content and their intercultural experiences. The journals focused on seven criteria that are considered essential to reasoning and critical thinking (Paul & Elder, 2013). These criteria were measured using a detailed evaluation rubric (See Appendix B). Throughout the cultural training course, students practiced writing journal entries while focusing on specific criteria. This was done to prepare students to reflect and write journal entries on their experiences overseas. After the study abroad program, the journals were evaluated on each criterion. No significant relationship was observed between the journaling criteria and CQ

One potential reason for these null findings is the lack of journal standardization across students. While every student was instructed to reflect on their cultural experience abroad, each student's journal entries were unique. Weekly, students met with their cultural mentor to review their journal and guide them through the study abroad. These meetings focused on discussing cultural interactions as well as non-culture-related personal development. Based on these interactions, the students and cultural mentors worked together to create personalized journal assignments. Some of these assignments focused on cultural interactions, and others did not. Accordingly, the content of each student's journal content varied widely. The combination of writing journal reflections and weekly meetings was designed to provide the mentors with an in-depth view into their students' learning process; however, reflective journaling and cultural mentoring may represent a missed opportunity to engage students in cultural learning further. More research is needed to understand the actual effects of reflective journaling and cultural mentoring on study abroad programs. Future studies could create or follow a standardized plan instead of personalizing the experience to each student. Applying this methodology would allow for

experimental conditions that would provide a clearer indication of the effects of reflective journaling and cultural mentors on CQ development in undergraduate students studying abroad.

Another potential reason that the criteria were not associated with CQ development is that their use may have captured students' ability to apply the rubric and not on the process of social learning experienced during study abroad. Students learned to write reflective journal entries using the rubric during the spring semester and later used the rubric to guide their reflective journal assignments abroad. However, there is no apparent theoretical connection between the seven criteria and the process of social learning. SLT states that learning is facilitated through *attention*, *retention*, and *reproduction*, yet the journal criteria did not capture social learning. Previous research indicates that reflective journaling becomes part of the process of learning rather than the product of learning (Branch & George, 2017; Hyers, 2001), but the use of the seven criteria may not have adequately capture social learning. Future programs should consider alternative forms of journal evaluation and strive to connect the quality and frequency of social interactions found within the journal and not on the actual writing.

Additionally, toward the end of the cultural training course and before leaving for their study abroad, students were directed to create cultural goals related to the CQ domains to pursue during the study abroad experience. Cultural goals were analyzed in two ways. First, the relationship between setting a CQ domain-specific goal and a students' development in that corresponding CQ domain was examined. Second, the total number of goals a student set was examined. Interaction models were estimated for both analyses. Goal setting has positively impacted individuals in multiple learning environments (Epton et al., 2017); however, no research has investigated how goal use for CQ development during study abroad. According to Liao and Thomas (2020), one of the characteristics of effective intercultural interaction is completing task-related goals in culturally different contexts. However, no differences were found between students who set goals compared to students who did not.

One possible explanation for why setting goals had no impact on CQ outcomes is because the cultural mentors did not require all students to set a CQ related goal. Among the students who did create a cultural goal, there was wide variation in the number and quality of those goals. Some students may have set goals that were strong candidates for CQ development while others did not; however, since the cultural mentors did not evaluate goal quality, this remains unknown. These methodological inconsistencies make it difficult to conclude the effectiveness of goal setting in

CQ development. To address this concern, cultural mentors should either assess the quality of their students' goals and help refine those goals or create a small database of goals with predefined steps to accomplish them, from which the students can choose. These options would allow for a more systematic methodology that would advance the scientific rigor of empirical studies on CQ development.

### **Practical Implications: Translating Research to Practice and Policy**

This research provides several practical implications for future researchers examining the effects of cultural training courses and/or study abroad experiences and university faculty and administrators responsible for program design and policy.

#### **Practical Implications for Researchers and Program Leaders**

*Researchers and faculty engaged in cultural training through courses or study abroad should seek to standardize program components such as reflective journaling to understand better how and why students develop CQ.* One limitation of this dissertation was a failure to standardize several program components, including the reflective journal entries and cultural goals tailored to individual student needs. A lack of standardization prevents this dissertation from establishing the connection between journal writing, setting goals, and CQ development. Furthermore, a lack of standardization conflicts with the learning structure outlined in the SLT. To understand if SLT influences assignments and mentoring, everything must be standardized. Without standardization, there is no way to determine how students were impacted. These would have been the first studies to investigate the potential moderating effects of these two program components. However, due to a lack of standardization, the results are not generalizable beyond the sample.

Despite the null findings and methodological limitations of this dissertation, researchers and program leaders should still use reflective journaling in CQ research as it enables students to make sense and meaning. Theoretically, reflective journaling aligns with the learning process outlined in SLT. However, there is no empirical evidence linking reflective journaling to CQ development. Past research in other educational settings highlights the impact of reflection and writing on learning. Reflective practices help students improve their communication, critical thinking, and observational skills (Guthrie & Jones, 2012) while making sense and meaning of

their experience (Rarieya, 2006; Schön, 1983). This process can enable students to recognize the knowledge (cognitive CQ) that is implicit in their behavior (behavior CQ) (Schön, 1983), which can enhance learning outcomes (Nelson Laird et al., 2016) helping to prepare for future interactions. Research in the clinical setting demonstrates that reflective practices enhance a person's ability to link their knowledge and behavior, resulting in deeper learning and a more positive experience for students (Braine, 2009; Leung & Kember, 2003; McCarthy et al., 2013).

No previous standardized journal plan has been tested or proposed for faculty and researchers to implement CQ development on study abroad. To solve this issue, I developed a modular 21-day journaling plan that can fit most short-term study abroad programs' needs. Each day in the plan corresponds to at least one SLT phase and CQ domain. The standardized journal is organized into four phases: 1) engage in first impressions (cognitive CQ; SLT *attention* phase), 2) interact with locals and strategize (metacognitive & behavioral CQ; SLT *retention* and *reproduction* phases), 3) compare and contrast what they have learned at the mid-point of the study abroad time (cognitive & metacognition CQ; SLT *attention & retention*), and 4) engage in self-reflection.

During the first phase, students document their anticipations and first impressions (metacognitive and behavior CQ: SLT *reproduction*). To gather first impressions, students compare the knowledge, skills, and strategies they developed during the cultural training course to their first intercultural interactions in the host country. As the study abroad program progresses, students are encouraged to engage with local people to apply the CQ skills they learned during the course (metacognitive and behavior CQ; SLT *retention and reproduction*) and try various approaches to interacting with locals (behavioral CQ; SLT *reproduction*). After students engage with locals, they compare their pre-interactions expectations for the interactions to how it went. During the third and fourth phases, students begin to apply all of the course material with their experiences to engage in self-evaluation and plan for the future. See Appendix B for an example of a standardized 21-day journal plan.

*Study abroad program leaders should incorporate cultural mentoring into their programs.* When students work one-on-one with a mentor, the study abroad learning outcomes are enhanced (Jones et al., 2019). Moreover, several studies demonstrate that without instructor guidance, study abroad programs may cause regression in many students (Anderson et al., 2006; Lorenz et al., 2012; Pedersen, 2009). Some research suggests that students need a mentor to rely on for support



and guidance to develop reflective practices (Gustafsson & Fagerberg, 2004; McCarthy et al., 2013). Cultural mentors can help guide students' reflection on cultural differences by giving students ideas about how to explore the host culture (i.e., "Drop Off" assignments) and challenge their cultural knowledge and assumptions while considering their level skills and personality (Paige & Goode, 2009).

This dissertation used cultural mentors who met weekly (for about 30 minutes) with their mentees while overseas. The cultural mentors consisted of two faculty members and one student teaching assistant. Based on this experience, past students make good teaching assistants because they have already been through the process. Accordingly, they already know the course content and instructor expectations and can provide feedback and guidance from the perspective of someone who recently completed the process.

Reciprocal peer learning emphasizes students' simultaneously learning from and contributing to other students' learning (Boud et al., 1999). On a study abroad program, peer learning can be used to enhance student CQ development. While there is no previous research on how reciprocal peer learning can help students develop CQ, there is research on how this technique has been used in other skill development areas abroad. Sharing experiences with peers is an essential strategy for students to increase their cultural perspective and boundaries, especially among less experienced students (McLeod et al., 2018). This was shown to help students realize that effective intercultural interactions require patience and the desire and ability to understand others' backgrounds (McLeod et al., 2018). Through peer learning abroad, students can co-construct intercultural learning opportunities that otherwise wouldn't exist if the student attempted to engage with locals on their own (Borghetti et al., 2015). These co-constructed experiences allow both parties to recognize the interactive features that otherwise may not be noticed when interacting alone. Furthermore, reciprocal peer learning can reduce the feeling of being alone while abroad because students develop more self-awareness and share these experiences with their peers. Sharing this developing self-awareness helps students to recognize that other students feel and experience cultural interactions in a similar manner.

## **Practical Implications for Colleges and Universities**

*Universities should hire teaching assistants to assist in program teaching and program management.* This dissertation demonstrates that students can experience significant CQ development after a cultural training course in as little as three weeks abroad. Previous research on a combined cultural training course followed by a short-term study abroad experiences also found positive CQ development (Engle & Crowne, 2013). This finding is significant for study abroad practice and policy because short-term programs are becoming more desirable to students than more extended programs (Hernández-Díaz et al., 2017; Ramakrishna et al., 2016), in part because they are less expensive and provide students with additional time to pursue coursework or internship opportunities in the summer. One limitation to offering pre-departure training is the time commitment to organize and conduct the class sessions. This study analyzed a cultural training course with over 30 hours of training. This time commitment may be impractical for many professors.

Furthermore, providing cultural mentoring to a large number of students abroad can be difficult. This dissertation research used a student teaching assistant in the spring semester to prepare course material and lead in-class sessions as well as provide cultural mentorship to students during the study abroad experiences. Using a graduate assistant can provide an affordable way to disseminate programs.

*Universities should build programs to collect and manage their data instead of relying on third-party companies to conduct the assessment and provide a professional feedback report.* Funding limitations prevented this dissertation from collecting the CQS at more than two-time points. If data had been collected independently, then more time points could have been collected. This would allow for a more comprehensive analysis of the effects of cultural training and study abroad experiences on CQ development.

## **Strengths and Weaknesses**

This dissertation has several important methodological strengths. First, Study 1 and Study 2 are among the first studies to use a quasi-experimental design to demonstrate the impact of a combined intercultural development program empirically. Most previous research relied on repeated measures analyses to compare pre-post improvements within the same group. Second,

these studies are among the first to implement theory in program design and evaluation. The lack of a cohesive application of theory in this research field is considered a potential factor in inconsistencies across studies (Liao & Thomas, 2020; Michailova & Ott, 2018). Research should continue to incorporate theory. Third, our analysis used multilevel modeling with time is nested within students. Therefore, using regression analysis on this data would lead to underestimating standard errors of coefficients and an overstatement of statistical significance. Next, we control for a within-cluster variance by using a multi-level model and testing the fixed-effect estimate against the remaining between-cluster variance. This allows us to resolve the issue of multiple responses per student. Finally, because the students who participated in the program experienced a more prolonged period between pre-post data collection (2 semesters) than the *comparison control group* (1 semester) – multilevel modeling does not require the same measurement schedule for all groups in the analysis. Accordingly, the scores can be compared regardless of the time difference.

There are also important methodological limitations that may guide future research. For instance, the CQS is a self-report measure, leading to biased responses (Nisbett & Wilson, 1977; Podsakoff & Organ, 1986). Consequently, the increase in behavior CQ may not be evidence that students *can* and *do* interact (behavior CQ) as they claim. One possible way to reduce this limitation could be for researchers to use the observer version of the CQS as an instructor-administered assessment and compare those results to the student's self-assessment (Chua & Ng, 2017; Lee et al., 2018; Van Dyne et al., 2008). These responses could be used to compare self and other evaluations of CQ skills and provide a more accurate assessment of a student's actual ability.

Other limitations highlight areas of improvement for future research concerning study sample, study design, data collection methods, and measurements. The study sample was recruited from a convenience pool who applied to participate in a study abroad program. Since all students self-selected to participate in the study abroad experience, the sample may not be generalizable to the larger undergraduate population since it is unknown if students who study abroad differ in any significant way. Using a comparison control group alleviated the negative impact on the sample limitations by creating a counterfactual experience for comparison. However, participation in the summer research program (comparison control group) is not necessarily representative of the standard college experience. Future research should seek to incorporate control groups consisting of students who represent the traditional college experience to reduce sampling limitations.

Additionally, there were several limitations to the data collection methods and measurements. One major hurdle to the data collection methods was the small number of data collection time points. Due to this limitation, this dissertation cannot separate the effects of the cultural training course from the study abroad experience. Consequently, the combination of elements from the cultural training course or study abroad experience may hinder or have no impact on CQ development. However, a lack of a third timepoint between the cultural training course and the study abroad experience prevents this analysis. This limitation stemmed from budget limitations as the study had enough funds for each student to complete the CQS assessment two times. Often, two time points are not enough to examine change over time. However, the nested structure of the data allowed for multi-level analyses, which attenuated this limitation. To avoid this limitation, future research should implement online survey tools to administer the CQS themselves. This would reduce the cost of third-party administered surveys and provide more explicit evidence to best help students.

A lack of standardization in assigning reflective journal entries and a lack of standardization of goals students created were measurement limitations that negatively impacted the findings' application. Without standardization, there was no way for instructors to ensure that students received a comparable experience. By applying a standardized plan, like the one outlined in the practical implications section, future research will make stronger connections between the effects of program components on CQ.

Furthermore, the CQ assessment was only administered in English. A small number in our sample were international students from non-English speaking countries. While international students studying in the United States are required to hold an adequate English proficiency level, the validity of taking the CQ assessment in a foreign language is unknown. Several studies have investigated the usefulness of the CQ assessment in multiple languages (AL-Dossary, 2016; Moyano et al., 2015; Sahin et al., 2013); however, it is unknown if the CQ scores would differ in international students at US universities based on the language of the CQ test.

## **Future Research**

Future empirical research should focus on experimental studies that randomize students into groups who receive unique intervention variations. For example, a group of students could receive a modified online version of a cultural training course, and their CQ development could

be compared to an intensive course like the one outlined in this dissertation. The effort involved in teaching the intercultural development program outlined herein is extensive and may not be replicable in other circumstances. Thus, future research should randomize students into groups that receive the same information through different assignments and delivery methods. For example, online vs. in-person delivery or assignments that required intercultural interactions on campus vs. not requiring the intercultural interaction. This focus will further develop the scientific understanding of what delivery methods and assignments best align with the SLT and CQ development,

Another unexplored area for future research is on group dynamics and group-level CQ. Previous research on cultural training courses and study abroad experiences focuses on student-level characteristics and individual growth; however, no research focuses on the characteristics of the group or aggregate group CQ development. Since students who complete a shared cultural training course and study abroad experience a significant amount of shared time in CQ training, their growth may be connected. Future research should explore group development or dynamics measures to better understand group dynamics' effects upon individual student development.

Another area for future research is domestic cultural differences, which can be just as vast within a nation as between nations (Taras et al., 2016). One characteristic of effective intercultural interaction is developing and maintaining an interpersonal relationship with a culturally different person (Liao & Thomas, 2020). Future research should help people develop a domestic relationship with a culturally diverse person to evaluate the effects on CQ development. This avenue of research could determine if significant cultural intelligence development can be facilitated on-campus without the need to go abroad. Alternative travel options could be developed that provide the once and a lifetime experience of study abroad at a fraction of the cost.

## **Conclusion**

Findings presented in this dissertation suggest that an intercultural development program may increase undergraduate students' CQ scores compared to students who stayed on a college campus in a research-focused program for summer. Social learning theory was used to develop the intercultural program under inspection, which provided a theoretical foundation to explain how a cultural development training course coupled with an immersive international experience can help

undergraduate students increase their CQ. In this dissertation, I argue that programs focused on a combined effort to support students' *attention*, *retention*, and *reproduction* can maximize students' cultural intelligence and explore student- and program-level factors that may impact student development.

This program combines a cultural development training program (9- or 10-weeks) followed by either a 3- or 6-week, instructor-led study abroad experience. Cultural training focused on assisting students with *attention* and *retention*, while the study abroad focused on *reproduction*, using cultural mentors who helped students with intercultural and personal goals. Previous research on college students supports our findings that indicate that both program components appear necessary for cultural growth (MacNab et al., 2012; MacNab & Worthley, 2012).

This dissertation suggests participating in a cultural training course, and then studying abroad increases undergraduate students' motivation, cognitive, metacognitive, and behavior CQ compared to a comparison group. CQ development was not impacted by the quality of students' reflective journals or whether they set a specific CQ goal. Furthermore, we observed that after completing a cultural development course, students who studied abroad for 3- or 6-weeks improved in all four CQ domains relative to a comparison group. Moreover, students in both the 3- and 6-week groups experienced similar rates of increased motivation, cognitive, and behavior CQ. Metacognitive CQ increased significantly more for students in the 3-week program than students in the 6-week program; however, Time 2 metacognitive CQ was not significantly different between groups. All observations comparing the 3- and 6-week programs persisted after controlling for student-level variables. These results add to our knowledge about how much time abroad is required for students to experience significant CQ development when guided by a faculty-cultural-mentor and received previous cultural training. The study adds to the collective understanding of how undergraduate students' CQ can be developed through on-campus training and study abroad experiences. Additional research is needed further to explore the pedagogical techniques, individual student-level characteristics, and study abroad program location differences facilitating or hindering undergraduate students' CQ development.

## APPENDIX A. MEASURES

### Cultural Intelligence Survey (CQS)

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
<b>Motivation</b>							
I enjoy interacting with people from different cultures.	1	2	3	4	5	6	7
I am confident that I can socialize with locals in a culture that is unfamiliar to me.	1	2	3	4	5	6	7
I am sure I can deal with the stresses of adjusting to a culture that is new to me.	1	2	3	4	5	6	7
I enjoy living in cultures that are unfamiliar to me.	1	2	3	4	5	6	7
I am confident that I can get accustomed to the shopping conditions in a different culture.	1	2	3	4	5	6	7
<b>Cognitive</b>							
I know the legal and economic systems of other cultures.	1	2	3	4	5	6	7
I know the rules (e.g., vocabulary, grammar) of other languages.	1	2	3	4	5	6	7
I know the cultural values and religious beliefs of other cultures.	1	2	3	4	5	6	7
I know the marriage systems of other cultures.	1	2	3	4	5	6	7
I know the arts and crafts of other cultures.	1	2	3	4	5	6	7

I know the rules for expressing non-verbal behaviors in other cultures.	1	2	3	4	5	6	7
<b>Metacognitive</b>							
I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.	1	2	3	4	5	6	7
I adjust my cultural knowledge I apply to cross-cultural interactions.	1	2	3	4	5	6	7
I am conscious of the cultural knowledge I apply to cross-cultural interactions.	1	2	3	4	5	6	7
I check the accuracy of my cultural knowledge as I interact with people from different cultures.	1	2	3	4	5	6	7
<b>Behavior</b>							
I change my verbal behavior (e.g., accent, tone) when a cross-cultural interaction requires it. I use pause and silence differently to suit different cross-cultural situations.	1	2	3	4	5	6	7
I vary the rate of my speaking when a cross-cultural situation requires it.	1	2	3	4	5	6	7
I change my non-verbal behavior when a cross-cultural situation requires it.	1	2	3	4	5	6	7
I alter my facial expression when a cross-cultural situation requires it.	1	2	3	4	5	6	7



### Reflective Journal Evaluation Rubric

	1 = Poor	2 = Good	3 = Very Good	4 = Superior
Accuracy	Consistently makes inaccurate statements and/or fails to provide supporting evidence for claims regarding personal experiences, when discussing interpersonal and/or intercultural goals, as well as addressing academic content learned in the Spring and as well as during the study abroad trip.	Makes several inaccurate statements and/or supports few statements with evidence regarding personal experiences, when discussing interpersonal and/or intercultural goals, as well as addressing academic content learned in the Spring and as well as during the study abroad trip.	Usually but not always makes statements that are accurately and well-supported with evidence regarding personal experiences, when discussing interpersonal and/or intercultural goals, as well as addressing academic content learned in the Spring and as well as during the study abroad trip.	Consistently makes statements that are accurate and well-supported with evidence regarding personal experiences, when discussing interpersonal and/or intercultural goals, as well as addressing academic content learned in the Spring and as well as during the study abroad trip.
Clarity	Consistently fails to provide examples, to illustrate points, and define terms regarding personal experiences, when discussing personal and/or intercultural goals, and/or addressing academic content learned in the Spring and as well as during the study abroad trip.	Only occasionally provides examples, to illustrate points, and define terms regarding personal experiences, when discussing personal and/or intercultural goals, and/or addressing academic content learned in the Spring and as well as during the study abroad trip.	Usually, but not always, provides examples, to illustrate points, and define terms regarding personal experiences, when discussing personal and/or intercultural goals, and/or addressing academic content learned in the Spring and as well as during the study abroad trip.	Consistently provides examples, to illustrate points, and define terms regarding personal experiences, when discussing personal and/or intercultural goals, and/or addressing academic content learned in the Spring and as well as during the study abroad trip.
Depth	Fails to address salient questions that arise from experiences and/or statements being made by others; over-simplifies when discussing connections with other cultures; does not consider the complexities regarding personal experiences during the study abroad trip, when discussing either interpersonal and/or intercultural goals, and/or addressing academic content learned in the Spring and as well as during the study abroad trip.	Addresses few of the salient questions that arise from experiences and/or statements being made by others; often over- simplifies when discussing connections with other cultures; considers little of the complexities regarding personal experiences during the study abroad trip, when discussing either interpersonal and/or intercultural goals, and/or addressing academic content learned in the Spring and as well as during the study abroad trip.	Addresses some but not all the salient questions that arise from experiences and/or statements being made by others; rarely over-simplifies when discussing connections with other cultures; often considers the complexities regarding personal experiences during the study abroad trip, when discussing either interpersonal and/or intercultural goals, and/or addressing academic content learned in the Spring and as well as during the study abroad trip	Thoroughly addresses salient questions that arise from experiences and/or statements being made by others; does not over-simplify when discussing connections with other cultures; considers the full complexities regarding personal experiences during the study abroad trip, when discussing either interpersonal and/or intercultural goals, and/or addresses academic content learned in the Spring and as well as during the study abroad trip

	1 = Poor	2 = Good	3 = Very Good	4 = Superior
Breadth	Ignores or superficially discusses issues regarding personal experiences on the study abroad trip, when discussing their personal and/or intercultural goals, and/or addressing academic content learned in the Spring and as well as during the study abroad trip	Gives minimal consideration to issues regarding their personal experiences on the study abroad trip, when discussing their personal and/or intercultural goals, and/or addressing academic content learned in the Spring and as well as during the study abroad trip	Gives some consideration to issues regarding their personal experiences on the study abroad trip, when discussing their personal and/or intercultural goals, and/or addressing academic content learned in the Spring and as well as during the study abroad trip	Gives meaningful consideration regarding their personal experiences on the study abroad trip, when discussing their personal and/or intercultural goals, and/or addressing academic content learned in the Spring and as well as during the study abroad trip
Fairness	Consistently represents the perspectives and viewpoints of Japanese culture, as well as others on the study abroad trip, in a biased or distorted way regarding their personal experiences on the study abroad trip, when discussing personal interactions	Occasionally represents the perspectives and viewpoints of Japanese culture, as well as others on the study abroad trip, in a biased or distorted way regarding their personal experiences on the study abroad trip, when discussing personal interactions	Often, but not always, represents the perspectives and viewpoints of Japanese culture, as well as others on the study abroad trip, when discussing personal interactions	Consistently represents the perspectives and viewpoints of Japanese culture, as well as others on the study abroad trip, when discussing personal interactions

	1= Poor	2= Somewhat Poor	3= Somewhat Good	4= Good	5= Very Good	6= Superior
Academic Enhancement	Identifies a specific academic concept that you understand better as a result of reflecting on an experience of interaction with others on the study abroad trip	Explains the academic concept (so that someone not on your study abroad would understand it)	Applies the academic concept by considering how this academic concept emerged during the study abroad or during your reflection of a past experience	Compares and contrast your initial understanding of the academic concept in light of your study abroad experience or reflection on a past experience	Develops an enhanced understanding of the academic concept in light of your study abroad experience or reflection on a past experience	Evaluates the completeness of the concept and/or of your understanding of the concept and/or of its use by you or others
Personal Growth	Identifies a personal characteristic that you now understand better as a result of reflecting on the experience	Explains the personal characteristic (so that someone who does not know you would understand it)	Considers how this personal characteristic does/might positively and/or negatively affect your interactions with others, your decisions, and/or your actions in your life	Analyzes the sources of this personal characteristic regarding your personal goals	Develops the steps necessary to use, improve upon, or otherwise change this personal characteristic during the study abroad trip	Evaluates your strategies for personal growth over the long term (i.e. how will you take what you have learned back with you? How will you know when you have successfully achieved your personal goal?)

### Cultural Goal Examples

Below is an example of a cultural goal for each of the four CQ domains.

Cultural Intelligence Domain	Example
Motivation	I'm nervous about ability to approach strangers while in France. I want to focus on developing my self-confidence to approach new people in an unfamiliar culture.
Cognitive	I know that Japan has a lot of shrines scattered throughout the country, but I don't know about how these shrines fit into the everyday religious and spiritual lives of locals. I want to visit shrines and talk to people about the implication of shrines.
Metacognitive	I want to learn more about how other people communicate with one another in France so that I can better adapt my own behavior to French culture.
Behavior	I studied French for three years in high school and one year in college. I want to apply my French at restaurants and shops, and I want to have at least one in-depth conversation with a French-local in French.

## APPENDIX B. RESOURCES

### Cultural Training Course Outline

	Topic	SLT	CQ Domain(s)
Class 1	Complete CQ Pre-Test		
	Overview of Course Topics		
	Jolt Activity		
	Country Specific Concepts	Attention	Cognitive
Class 2	Self-Awareness Exercise	Attention	Motivation, Cognitive
	Initial Goal Exercise	Attention	Metacognitive
	Introduction to Mindfulness	Attention	
	Country Specific Concepts	Attention	Cognitive
Class 3	Self-Awareness Activity w/Debrief	Attention / Retention	
	Mindfulness Activity #1 focused on increasing motivation	Attention	Motivation
	Mindfulness Activity #2	Attention / Retention	Cognitive
	Homework: Complete Worldview Assignment	Attention	Cognitive
Class 4	Homework: Complete Intercultural Communication Assignment	Attention	Metacognitive
	Brief Lecture on Motivation CQ	Attention	Motivation
	Jolt Activity		
	Country Specific Concepts	Attention	Cognitive
Class 5	Cultural Round Robin Activity	Attention, Retention and Reproduction	Cognitive, Metacognitive, Behavior
	Describing Comfort, Learning and Panic Zones (CLP)	Attention	Cognitive
	CLP Activity	Attention & Retention	Cognitive, Metacognitive
	Mindfulness Activity	Attention & Retention	Metacognitive
Class 6	Homework: Read Autobiography of a traveler	Attention	Motivation
	Homework: Complete Cultural Self-Awareness Activity #2	Retention	Metacognitive
	Homework: Interviewing someone with a different passport than yourself	Attention	Cognitive, Metacognitive, Behavior
	Brief Lecture on Cognition	Attention	Cognitive
Class 7	Country Specific Concepts	Attention	Cognitive
	Cultural Knowledge Activity	Attention	Cognitive
	Discuss Autobiography Book	Attention	Motivation, Cognitive
	Cultural Self-Awareness in Different Settings Activity	Attention	Cognitive, Metacognitive
Class 8	Mindfulness Activity	Attention & Retention	Metacognitive
	Homework: Read Mindful Twentysomething	Attention	
	Kairos & Karros Workshop focusing on Self-Awareness	Attention & Retention	Motivation, Metacognitive

Class 6	Homework: Playlist of your Life	Attention & Retention	Motivation, Metacognitive
	Homework: Interviewing another person with a different passport than yourself (must be different area of the world)	Retention	Cognitive, Metacognitive, Behavior
	Introduce Cultural Iceberg	Attention	Cognitive
	Country Specific Concepts	Attention	Cognitive
	Conflict Styles	Attention	Cognitive
Class 7	Identify Discussion	Attention & Retention	Metacognitive, Behavior
	Explain Concepts of Approach and Openness	Attention	Metacognitive, Behavior
	Homework: MyCQ Modules (for students in this arm of study)	Attention	
	Homework: Conflict Style	Attention	Metacognitive
	Homework: Journal assignments focused on Approach and Openness	Retention & Reproduction	Metacognitive, Behavior
Class 8	Homework: Book Review (Country specific)	Attention	Cognitive
	Brief lecture on Well-Being & Flourishing	Attention	Motivation
	PERMA on our study broad discussion	Attention	Motivation
	Country Specific Concepts	Attention	Cognitive
	Book Discussions	Attention & Retention	Cognitive
Class 9	Strange Situations Activity	Attention & Retention	Cognitive, Metacognitive
	Brief Lecture on Journal Depth Writing	Retention & Reproduction	Metacognitive, Behavior
	Homework: Book Review		Cognitive
	Homework: Journal assignments focused on Depth	Retention & Reproduction	Metacognitive, Behavior
	Short Video Practicing Observation Skills	Attention	
Class 10	Country Specific Concepts	Attention	Cognitive
	Book Discussions	Attention	Cognitive
	Activity where students much teach students on different study abroad important concepts from the book discussion	Attention & Retention	Cognitive
	Homework: Book Review	Attention	Cognitive
	How the past shapes the present activity and discussion	Attention & Retention	Metacognitive
Class 11	D.I.E. Activity	Attention & Retention	Cognitive, Metacognitive
	Every Picture Tells a Story Activity	Attention & Retention	Metacognitive
	Jolt Activity		
	Cultural Specific Etiquette Discussion	Attention	Cognitive
	Homework: Journal using all 5 dimensions	Retention & Reproduction	Metacognitive, Behavior
Class 12	Looking backwards, Moving Forward Discussions	Attention & Retention	Cognitive
	Country Specific Instruction	Attention & Retention	Metacognitive
	3-ish Rs of Cultural Change Lecture & Discussion	Attention & Retention	Cognitive
	3 things to start, stop, and continue doing	Attention & Retention	Metacognitive, Motivation

## 21-Day Journal

To guide their intercultural development, students will receive a 21-day *Intercultural Learning Notebook*. The *Notebook* directs students to record hand-written responses to 21 activities and reflection prompts, which were designed to increase their intercultural skills across three Cultural Intelligence domains (knowledge, strategy, and behavior). Knowledge is a person's understanding of cultural similarities and differences, while strategy is how they use that knowledge to prepare for intercultural interactions, and behavior is the ability to adapt their behavior during an intercultural interaction. To inform the development of the *Notebook*, we used the Social Learning Theory.

The Social Learning Theory states that people learn through observation. For observation to occur, three cognitive processes must happen: attention, retention and reproduction. The attention process reflects the extent to which people notice and pay attention to the noteworthy behaviors of a culture. The next process, retention, is how well a person commits the observed behaviors to memory. The final phase, reproduction, is a person's ability to recreate the behavior that they saw and copied to memory. Then, the person evaluates their reproduction and plans for the next time they recreate that behavior.

An example calendar of the 21-Day *Intercultural Learning Notebook* is provided on the next page. In the example we chronicle the plan by including the daily prompt topic (note: this is a general description and not the exact prompt) as well as the targeted Cultural Intelligence domains and Social Learning Theory processes.

<b>Day</b>  Prompt Topic  Cultural Intelligence (CQ) Domain  Social Learning Theory (SLT) Phase	<b>Pre-Departure (1/1)</b> The norms and cultural systems of the country you will visit  CQ: Knowledge SLT: Attention, Retention						
	<b>Day 1 (1/1)</b> Anticipation of going abroad and Comfort Zones  CQ: Cognitive, Metacognitive	<b>Day 2 (1/1)</b> Interpersonal Conflict  CQ: Cognitive, Metacognitive, Behavior SLT: Attention, Retention	<b>Day 3 (1/4)</b> Observe and interact with culture to test assumptions.  CQ: Behavior SLT: Attention, Retention	<b>Day 4 (2/4)</b> Receive feedback and create action plan for future interaction.  CQ: Metacognitive SLT: Reproduction	<b>Day 5 (3/4)</b> Observe and interact with culture to test assumptions.  CQ: Behavior SLT: Attention, Retention	<b>Day 6 (4/4)</b> Receive feedback and create action plan for future interaction.  CQ: Metacognitive SLT: Reproduction	<b>Day 7 (1/1)</b> Compare and contrast your hometown to the town you are in right now?  CQ: Cognitive SLT: Attention, Retention
	<b>Day 8 (1/1)</b> Observe the sights, smells, sounds, tastes and textures of your current location.  CQ: Cognitive, Metacognitive SLT: Attention, Retention	<b>Day 9 (1/4)</b> Observe and interact with culture to test assumptions.  CQ: Behavior SLT: Attention, Retention	<b>Day 10 (2/4)</b> Receive feedback and create action plan for future interaction.  CQ: Metacognitive SLT: Reproduction	<b>Day 11 (3/4)</b> Observe and interact with culture to test assumptions.  CQ: Behavior SLT: Attention, retention	<b>Day 12 (4/4)</b> Receive feedback and create action plan for future interaction.  CQ: Metacognitive SLT: Reproduction	<b>Day 13 (1/1)</b> Mid Self-evaluation.  CQ: Metacognitive SLT: Reproduction	<b>Day 14 (1/1)</b> Now that you have been in the country for a few weeks, reflect on you pre-departure <i>Notebook</i> entry.  CQ: Cognitive SLT: Reproduction
	<b>Day 15 (1/4)</b> Observe and interact with culture to test assumptions.  CQ: Behavior SLT: Attention, Retention	<b>Day 16 (2/4)</b> Receive feedback and create action plan for future interaction.  CQ: Metacognitive SLT: Reproduction	<b>Day 17 (3/4)</b> Observe and interact with culture to test assumptions.  CQ: Behavior SLT: Attention, Retention	<b>Day 18 (4/4)</b> Receive feedback and create action plan for future interaction.  CQ: Metacognitive SLT: Reproduction	<b>Day 19 (1/1)</b> Imagining everyday life: How would your life be culturally different if you grew up here?  CQ: Metacognitive, Action SLT: Reproduction	<b>Day 20 (1/2)</b> Final Self-evaluation and advice for future students.  CQ: Metacognitive SLT: Reproduction	<b>Day 21 (2/2)</b> Moving Forward: How you will use what you learned on campus and professionally?  CQ: Cognitive, Metacognitive, Behavior SLT: Reproduction



## **APPENDIX C. CONSENT FORM**

### **RESEARCH PARTICIPANT CONSENT FORM- Study Abroad**

Purdue Summer Program Evaluations

Dr. Stewart Chang Alexander

Consumer Science

Purdue University

Please take time to review this information carefully. This is a research study. Your participation in this study is voluntary which means that you may choose not to participate at any time without penalty or loss of benefits to which you are otherwise entitled. You may ask questions to the researchers about the study whenever you would like. If you decide to take part in the study, you will be asked to electronically sign this webpage, be sure you understand what you will do and any possible risks or benefits. The purpose of this study is to determine the effects of our summer stay on student success. The duration of the study will be two sessions of approximately 60 minutes each for a total of two hours.

#### **What is the purpose of this study?**

You are being asked to participate in this study so that we can determine the effects of our summer study abroad program on student success. Results from this study will inform future programs. You will be asked to complete a survey before your program and another at the end of summer. The survey typically takes 1-hour each time to complete.

You will also be asked to allow the instructors to use your study abroad program course assignments from the spring and summer as data for the study. Your assignments will be de-identified (your names removed and replaced by a Unique ID number) before sent to the research team. You are being asked to participate because you are part of the following study abroad programs: A French Lived Experience or A Japanese Lived Experience. We plan to enroll up to 100 students into the study.

#### **What will I do if I choose to be in this study?**

You will be asked to complete a survey before your spring class and after your study abroad has ended. The survey follows after the completion of this form.

#### **How long will I be in the study?**

You will be in the study until the end of summer. Your participation time will consist of 2-hours (1-hour before your program begins and 1 hour at the end of your study abroad).

### **What are the possible risks or discomforts?**

This study is minimal risk. The risk is no greater than you would encounter in daily life or during the performance of routine physical or psychological exams or tests. Breach of confidentiality is always a risk with data, but we will take precautions to minimize this risk as described in the confidentiality section.

The study asks questions about student anxiety and stress. Study staff are trained on how to handle students who score high on these measures and the research team will use the University Procedure of contacting CAPS and either the Study Abroad Office, Summer Stay Program and/or Dean of Students about any student of concern. You will also be sent a link to CAPS contact information.

### **Are there any potential benefits?**

There is no direct benefit to you for participating in the study. However, there may be a benefit for future study abroad students because your results will help evaluate the impact of this study abroad and allow instructors to make changes for further improvement.

### **Will information about me and my participation be kept confidential?**

The project's research records may be reviewed by the by departments at purdue university responsible for regulatory and research oversight. Your data will be available to our research team. Your instructors will not have access to your survey data. No other individuals will have access to your data. The survey results will be kept on the college of health and human sciences server, which is a secured server.

A code key will be created to link your name to a unique id number. After grades have been posted, your class instructor will receive the code key from dr. Calahan. Your instructor will de-identify your information (i.e. Remove your name and replace it with your unique id number) from all assignments before sending the data to the research team. After all the data is collected and entered into our server, the code key that links your name to your unique id number will be destroyed. Researchers will keep all study data for 3 years after the surveys are completed. De-identified data will be used indefinitely for future research purposes.

### **What are my rights if I take part in this study?**

You do not have to participate in this research project. If you agree to participate, you may withdraw your participation at any time without penalty. To opt out of participation or withdraw your consent please notify a member of the research. The names and contact information for the investigators are listed below.

### **May I Withdraw?**

Yes. You may withdraw consent at any time by contacting Dr. Charles Calahan, calahanc@purdue.edu (765) 496-6503, as the first point of contact. Withdrawing from the study will not affect your ability to participate in your study abroad program.

**Who can I contact if I have questions about the study?**

If you have questions, comments or concerns about this research project, you can talk to one of the researchers. Please contact Dr. Charles Calahan, [calahanc@purdue.edu](mailto:calahanc@purdue.edu), (765) 496-6503.

To report anonymously via Purdue's Hotline see [www.purdue.edu/hotline](http://www.purdue.edu/hotline)

If you have questions about your rights while taking part in the study or have concerns about the treatment of research participants, please call the Human Research Protection Program at (765) 494-5942, email ([irb@purdue.edu](mailto:irb@purdue.edu)) or write to:

Human Research Protection Program - Purdue University  
Ernest C. Young Hall, Room 1032  
155 S. Grant St.  
West Lafayette, IN 47907-2114

**Documentation of Informed Consent**

I have had the opportunity to read this consent form and have the research study explained. I have had the opportunity to ask questions about the research study, and my questions have been answered. I am prepared to participate in the research study described above. I may print a copy of this consent form.

**Students will write their names in the webform showing approval.**

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## VITA

### Research Interest

- Formative and summative Cultural Intelligence assessment
- Intercultural learning curriculum design and evaluation
- Study abroad

### Education

#### **PhD    Public Health**

**Exp: Dec 2020**

Purdue University, West Lafayette, IN  
Dissertation: *Examining the Effects of an on-Campus Cultural Training Course combined with Faculty-Led, Short-term Study Abroad Experiences on Undergraduate Students' Cultural Intelligence*  
Advisor: Stewart Chang Alexander, PhD

#### **MS    Consumer Science, Health Disparities Concentration**

**Conferred: May 2016**

Purdue University, West Lafayette, IN  
Thesis: *mHealth to Improve the Diet Among Low-Income Populations Enrolled in an Established U.S. Nutrition Program: Design and Rationale of a Randomized Controlled Trial*  
Advisor: Stewart Chang Alexander, PhD

#### **BS    Sociology, Portuguese Minor**

**Conferred: May 2014**

University of Utah, Salt Lake City, UT  
Undergraduate Research: *Racial/Ethnic Social Distance Among Undergraduate Students in Utah Universities*  
Advisor: Dr. Theresa Martinez, PhD

### Professional Experience

**Purdue University – Department of Consumer Science/ Department of Public Health**  
*West Lafayette, Indiana*

*Graduate Research Assistant/Teaching Assistant, Ross Fellowship*                      *Aug. 2014 – Present*

- Assisted in conceptualizing and managing multiple studies
- Analyzed qualitative and quantitative datasets, resulting in 5 published manuscripts, 3 national/international presentations
- Served as a leader for a small group of undergraduate research assistants
- Assisted in design of curriculum and instruction delivery for intercultural development course
- Assisted in design and implementation of 4 study abroad programs across 6 unique countries

## University of Utah – Sociology

Salt Lake City, Utah *Undergraduate Teaching Assistant*

August 2013 – May 2014

### Research Experience

#### *Palliative Care Communication Research Initiative*

PI: Robert Gramling

#### Funding Sources:

American Cancer Society

**My Role:** Assisted in conceptualization of codebook and training undergraduate research assistants. Coded hundreds of hours of transcript and audio files for statistical analyses. Assessed and maintain reliability among coders. Assisted in manuscript writing and presenting findings at conferences.

#### *Purdue Intercultural Development Program Evaluations*

PI: Stewart Chang Alexander

**My Role:** Assisted in curriculum development and instruction delivery. Created and disseminated surveys for data collection. Cleaned dataset and performed all analyses using multilevel modeling.

### Skills

- Qualitative methodology, including conceptualizing study aims, developing protocols and research instruments, coding transcripts and audio files
- Quantitative methodology, including conceptualizing study aims, designing surveys, and conducting analysis (i.e., categorical data analysis, regression, and multi-level modeling)
- Project planning and management, including all phases of study conceptualization, data collection, analysis, synthesis, and presentation
- Leadership and mentorship of small research teams
- Flexibility and ability to work on multiple projects at once, including projects at different stages of development

### Software

STATA: Quantitative Data Analysis Software

SPSS IBM: Quantitative Data Analysis Software

Max QDA: Qualitative Data Analysis Software

Qualtrics

### Publications

#### Referred Manuscripts

R Gramling, J Straton, **LT Ingersoll**, LA Clarfeld, L Hirsch, CJ Gramling, (2020). Epidemiology of Fear, Sadness, and Anger Expression in Palliative Care Conversations. Journal of pain and symptom management. (In press)

- LT Ingersoll**, SC Alexander, S Ladwig, W Anderson, SA Norton, .(2019). The contagion of optimism: The relationship between patient optimism and palliative care clinician overestimation of survival among hospitalized patients with advanced cancer. *Psycho-oncology*. 28 (6), 1286-1292
- LT Ingersoll**, SC Alexander, J Priest, S Ladwig, W Anderson, K Fiscella, RM Epstein, SA Norton, R Gramling. (2019). Racial/ethnic differences in prognosis communication during initial inpatient palliative care consultations among people with advanced cancer. *Patient education and counseling*. 102 (6), 1098-1103
- R Gramling, **LT Ingersoll**, W Anderson, J Priest, S Berns, K Cheung, SA Norton, SC Alexander. (2019). Feeling heard and understood in the hospital environment: benchmarking communication quality among patients with advanced cancer before and after palliative care consultation. *Journal of palliative medicine*. 22 (2), 152-156
- LT Ingersoll**, F Saeed, S Ladwig, SA Norton, W Anderson, SC Alexander, R Gramling. (2018). Feeling heard and understood in the hospital environment: benchmarking communication quality among patients with advanced cancer before and after palliative care consultation. *Journal of pain and symptom management*. 56 (2), 239-244

#### Manuscripts in Review

- K Chang Alexander, S Chang Alexander, **LT Ingersoll**, ML Miller, CG Shields, JA Gipson, CA. Calahan. (under review). Evaluating an Intensive Course to Increase Cultural Intelligence: A Quasi-Experimental Design. *Frontiers: International Journal of Study Abroad*. Special Issue: Assessment as Pedagogy in Education Abroad.

#### Manuscripts in Preparation

- K Chang Alexander, SC Alexander, **LT Ingersoll**, CG Shields, ML Miller, JA Gipson, CA. Calahan, AL DeMaria, S Chang Alexander. Evaluating an Intensive Course to Increase Cultural Intelligence: A Quasi-Experimental Design. *Frontiers: International Journal of Study Abroad*. Special Issue: Assessment as Pedagogy in Education Abroad.

#### Presentations

##### National and International Oral Presentations

- Ingersoll LT**, Alexander SC, Ladwig S, Anderson W, Norton SA, Gramling R. The Contagion of Optimism: The relationship between patient optimism and palliative care clinician overestimation of survival among hospitalized patients with advanced cancer. Paper presented at: *The International Conference on Communication in Healthcare*; October 27-30, 2019; San Diego, CA.
- Ingersoll LT**, Saeed F, Ladwig S, Norton SA, Anderson W, Alexander SC, Gramling R. The Prevalence and Determinants of Feeling Completely Heard and Understood Before and After Palliative Care Consultations. Paper presented at: *The International Conference on Communication in Healthcare*; October 27-30, 2019; San Diego, CA.
- Ingersoll LT**, Alexander SC, Ladwig S, Anderson W, Norton SA, Gramling R. Types of Prognosis Talk in Palliative Care Consultations and Associated Changes in Quality of Life. Paper presented at: *The International Conference on Communication in Healthcare*; October 27-30, 2019; San Diego, CA.

### National and International Poster Presentation

**Ingersoll LT**, Alexander SC, Ladwig S, Kramer MM, Norton SA, Anderson W, Gramling R. Do End of Life Treatment Preferences Drive Prognosis Discussion in Palliative Care? Poster presented at: *The International Conference on Communication in Healthcare*; October 8-11, 2017; Baltimore, MD.

**Ingersoll LT**, Alexander SC, Ladwig S, Schrock WP, Marshall M, Gramling R. Do End of Life Treatment Preferences Drive Goal Communication in Palliative Care? Poster presented at: *The International Conference on Communication in Healthcare*; October 8-11, 2017; Baltimore, MD.

### Grants Awarded

#### **Travel**

- 2018 Compton Graduate Research Training Award; Purdue University; West Lafayette, IN  
*Funded: \$500.00*
- 2016 Compton Graduate Research Travel Award; Purdue University; West Lafayette, IN  
*Funded: \$500.00*
- 2016 CSR Travel Grant; Purdue University, West Lafayette, IN  
*Funded: \$300.00*

### Honors and Awards

Ross Fellowship, Health Disparities Research Lab, Purdue University  
2016-2020

Consumer Science Graduate Teaching Award  
2019

### Teaching Assistant Experience

- 2016-2020 Design & Analysis of Intercultural Development Curriculum  
Purdue University, College of Health and Human Sciences  
CSR 390: Intercultural Development  
Professor: Stewart Chang Alexander
- 2016-2020 Planning & Execution of Study Abroad Programs  
Purdue University, College of Health and Human Sciences  
New Zealand and Australia (2016); New Zealand (2017); Japan (2018); France, Italy, Switzerland (2019)  
Professor: Stewart Chang Alexander

### Mentoring Experience

Mentored over 25 students on personal, professional and cultural development  
2016-2019