A Phenomenological Pre- and Post-Reflective Comparison of Graduate Student Intercultural Competence from Agricultural Service-Learning Experiences

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Abstract

The purpose of this study was to determine growth in intercultural competence after graduate students participated in an international service learning (ISL) experience. One method for developing intercultural competence is service learning, where students apply learning in real-world settings through a cycle of action and reflection. This study used an interpretative phenomenological analysis related to the lived experience of eight graduate students who participated in two intensive ISL projects in Timor-Leste or Guatemala. Results included the student point of view (emic) narrative as an ethnographic crafted profile for each participant to demonstrate the process of intercultural competence development across individual and interaction processes. Students demonstrated knowledge gains after the experience, and several internal and external outcomes in their post-reflective narratives. Despite visiting different countries, the two groups of students demonstrated similar intercultural outcomes along the theoretical framework, indicating that despite contextual differences in experience, this framework maintains a robust perspective for analysing student experiences during ISL. The Process Model of Intercultural Competence served as a framework to assess intercultural competence. The process began with personal attitudes, openness to intercultural learning, and curiosity. Interpersonal outcomes developed with knowledge/comprehension through skills such as listening, observing, and interpretation. Developing flexibility, empathy, and adaptability promoted an informed frame of reference for a desired internal outcome. The external outcome resulted in behaving and communicating effectively from experience. Measuring intercultural diversity as a learning outcome from ISL can ensure adequate preparation for international development professionals.

Keywords: international service learning, preflection, intercultural competence, reflection, learning outcomes

Introduction and Theoretical Framework

Most higher education institutions promote learning outcomes for intercultural competence, inclusivity, and diversity as a part of the undergraduate core curriculum. Past research has indicated that when graduate students enter employment, the work environment is increasingly international and culturally diverse (Dimitrov, et al., 2014). Graduate students often work in settings that require the ability to solve problems and work collaboratively across multiple perspectives (Dimitrov et al., 2014; Hei et al., 2020). As suggested by Schultz (2007) and Witkowsky and Mendez (2018), the intensity and complexity of a contextually rich environments can provide opportunities for graduate students to develop intercultural competencies and promote success in a global professional environment. Intercultural competence is necessary for graduates entering a globalised, multicultural society (Liu & Dall'Alba, 2012; Liu et al., 2020) and is defined as "knowledge of others; knowledge of self; skills to interpret and relate; skills to discover and/or to interact; valuing others' values, beliefs, and behaviours; and relativizing one's self" (Byram, 1997, p. 34).

Universities designate undergraduate learning outcomes to include the demonstration of social, cultural, and global competence; yet, those outcomes are not always included specifically in the graduate student learning outcomes (TAMU Office of Graduate and Professional Studies, 2017). The graduate student competencies shift to "applying knowledge in a range of contexts" and "using a variety of sources to evaluate multiple points of view" (TAMU Office of Graduate and Professional Studies, 2017, p. 1). A study of intercultural competencies in graduate students in a private university in Lima, Peru used a non-experimental quantitative approach and found that 36% of graduate students had adequate intercultural competences (Orozco-Vargas et al., 2020). Another study conducted with 1,421 Chinese graduate students provided a summary of global competence studies using the Intercultural Competency Scale (Elmer, 1987), Assessment of Intercultural Competence (Fantini, 2009; Fantini & Tirmizi, 2006), Global Competence Assessment Instrument for Evaluating College Graduates (Hunter et al., 2006), Instrument for Global Competence (Li, 2013), Intercultural Adjustment Potential Scale (Matsumoto et al., 2001), Global Competency Indexed Questions (Oson & Droeger, 2001), Cross-Cultural Sensitivity Scale (Pruegger & Rogers, 1993), and the Multicultural Personality Questionnaire (Van der Zee & Van Oudenhoven,2001; as cited by Liu et al., 2020).

International scholars typically agree assessment methods include student interviews, case studies, analysis of narrative diaries, papers/presentations, portfolios, observation, and pre- and post-tests (Deardorff, 2006). Additionally, "measuring intercultural competence is specific to context, situation, and relation" (Deardorff, 2006, p. 253). A lack of holistic assessment strategies, however, makes documenting intercultural competence development among students challenging (Deardorff, 2006). Thus, new, evidence-based strategies for assessing intercultural competence development for graduate students are needed that meet the needs of graduates in today's globalized society.

The Process Model of Intercultural Competence served as a framework to assess intercultural competence for this study (Deardorff, 2006). The process begins with requisite attitudes at the individual level, such as respect (valuing other cultures), openness to intercultural learning, and curiosity (tolerating ambiguity and uncertainty). The learner

moves from personal level attitudes to interpersonal outcomes as they develop the knowledge/comprehension for cultural self-awareness through skills such as listening, observing, and interpretation. Developing flexibility, empathy, and adaptability promote an informed frame of reference for a desired internal outcome. As a student develops intercultural competence, they may reach the desired external outcome of behaving and communicating effectively based upon the knowledge, skills, and attitudes gained through an experience. It is an iterative process of continuous learning with an emphasis on the internal as well as external outcomes of intercultural competence (Deardorff, 2006). Liu et al. (2020) indicated that Deardorff's (2006) framework was useful and valuable to educational institutions and educators to measure intercultural competence levels through assessment scales. Deardorff's (2006) framework was developed through a Delphi method with intercultural scholars in the United States; thus, analyzing the robustness of the framework with student perspectives was necessary for determining the applicability of the framework in ISL settings.

Figure 1
Process Model of Intercultural Competence
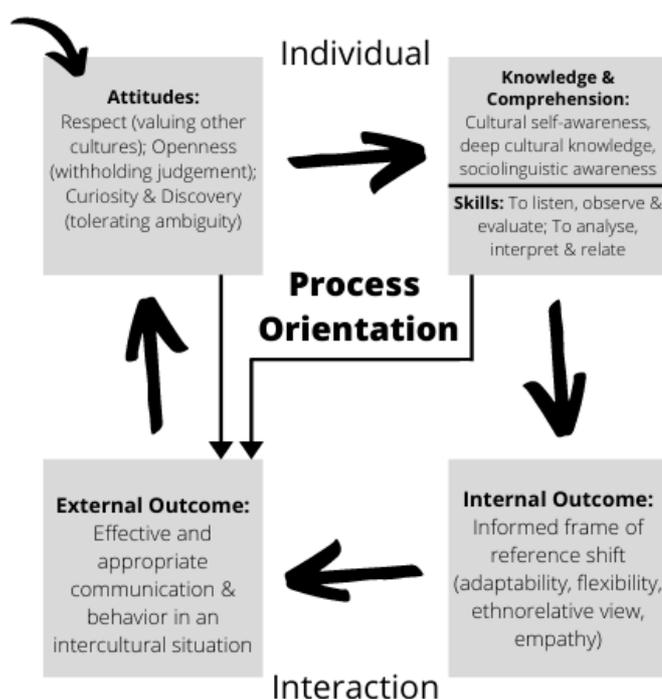
Note. Adapted from Deardorff, 2006, p. 256

One method for developing intercultural competence is service learning, where students apply their learning in real-world settings and reflect on their experiences (Kuh, 2008). Service learning is a community engagement pedagogy within experiential education, where learning occurs through a cycle of action and reflection (Eyler, 2002). While much of the literature focuses on intercultural assessment and development within

the classroom (Liu & Dall'Alba, 2012; Moore & Hampton, 2015), limited studies integrate more qualitative assessments for intercultural development during graduate-level service learning.

Purpose and Research Objective

The purpose of this research was to determine changes in intercultural competence after participating in a contextually rich international service-learning experience. The research objective was to compare intercultural competencies (attitudes, knowledge, skills, internal outcomes, and external outcomes) before and after the ISL to determine (a) if regardless of context, the growth in intercultural competence is similar, and (b) to assess growth or change based upon pre- and post-reflective writing using open-ended narrative and the process model of intercultural competence. Was there a shift from individual attitudes, knowledge/comprehension, and skills to interaction processes related to internal outcome (i.e., frame of reference adaptability, flexibility, ethnorelative view, empathy) and external outcome (i.e., appropriate communication and behaviour in an intercultural situation)?

Methods

This study used an interpretative phenomenological analysis (IPA) related to the lived experience of eight graduate students purposively selected to participate in two intensive international service-learning projects. IPA requires a process of engagement and interpretation with a small number of participants who are "engaged with 'an experience' of something major in their lives" (Smith et al., 2009, p. 3). IPA "attempt[s] to capture particular experiences as experienced for particular people" and understand both the cognitive and affective reactions to their experience (Smith et al., 2009, p. 16). The analysis searches for patterns across themes, but retains individual detail and nuance, with analysis of convergence and divergence within its participant sample. The contextually rich experience for this study was developed with professors who had international development projects in Timor-Leste and Guatemala funded by the United States Agency for International Development. The researchers were external evaluators on the project and did not directly create the service-learning in the international setting, enhancing neutrality in the analysis.

Graduate students were recruited from an interdisciplinary online course developed as a partnership between the University of Arkansas, Texas A&M University, and Texas Tech University, and had varied areas of specialization ranging from horticulture, agricultural education, and government/policy. There were three men and five women across the two ISLs, between 23 and 45 years of age. Three were doctoral students and five were master's students. Pseudonyms were used for confidentiality (*Timor-Leste*: Bernice [master's student], Caroline [master's student], George [master's student], Margaret [doctoral student]; *Guatemala*: Celia [doctoral student], Ruth [doctoral student], Sparky [master's student], Tony [doctoral student]). The University of Arkansas and Texas A&M University Institutional Review Boards approved the study protocol (#00000261).

All eight graduate students completed a pre- and post-experience reflection prior to the ISL. Preflection is "a process of being consciously aware of the expectations associated with the learning experience…it increases [students'] capacity to reflect upon the concrete experience [....]. Preflection provides a bridge between thinking about an experience and learning from the experience" (Jones & Bjelland, 2004, p. 963), and is a technique used within agricultural ISL (e.g., Gouldthorpe et al., 2012). Students also submitted a post-experience reflection. Reflection is a "process by which an experience is brought into consideration, while it is happening or subsequently. It is the creation of meaning and conceptualization from the experience" (Gamble et al., 1999, p. 2). The reflective writing samples included prompts about student attitudes and beliefs, opportunities, and expectations before and after the experience.

Crafted Profiles

To provide a glimpse of the individual lived experience the researchers implemented a modified crafted profile technique from the writing samples (Seidman, 2013). One researcher who is an expert at narrative analysis crafted summaries reflective of the essence of respondent experiences rather than quotes in their entirety to improve readability, using a focus on plot construction and individual meaning-making to craft a narrative (Freeman, 2017). Crafted profiles are a narrative data reporting technique in which findings are co-constructed, using the participant's own words to describe the story of their lived experience. Crafted profiles are "an effective way of sharing [data] and opening up one's [material] to analysis and interpretation" (Seidman, 2013, p. 122). Crafted profiles limit researcher bias by maintaining a central focus on the participants' perspectives and experiences, but allow for researcher interpretation through the selection of quotations as a basis for constructing a narrative plot (Freeman, 2017; Seidman, 2013). The selected quotations then serve as narrative starting points to move from categorical thinking, used in most thematic coding processes in which patterns are distilled across participants thus limiting individual nuance in analysis, to narrative thinking, which "highlight[s] the unique voice and meaning-making process of individuals and groups" (Freeman, 2017, p. 11). The crafted profiles in the current study were an attempt to comprehensively represent participating students' writing; however, data and methodological triangulation allow for more representation of participants' words across the methodological analysis.

Thematic Analysis

The secondary form of data analysis in the current study was thematic analysis of participant preflective and post-reflection narratives. While the crafted provided rich contextualization for participant perspectives, thematic analysis allowed for data triangulation to connect lived experiences to Deardorff's (2006) theoretical perspective. Themes were identified using an abductive technique (Tavory & Timmermans, 2014; Timmermans & Tavory, 2012; Vila-Henniger et al., 2022) and peer debriefing in two stages (open and axial coding). Abductive coding includes both emergent and theory-driven codes in a hybrid thematic analysis (DeCuir-Gunby et al., 2011). Deardorff's (2006)

model was used for theoretical triangulation in the axial coding stage and second peer debriefing, and provided guidance for theory-driven codes. Emergent codes were identified as those important to participants' meaning-making but not directly represented in Deardorff's (2006) model.

Thick description was used to give voice to the personal experiences and transferability to the reader in addition to the crafted profiles in the findings (Lincoln & Guba, 1985). In the results section, a brief contextual setting is included to describe each ISL experience. An audit trail was used to trace data across participants and contexts (Smith & Shinebourne, 2012). Theoretical and method triangulation (Stahl & King, 2020) was used to compare results within the current study (including both narrative and thematic analysis) as well as to other longitudinal outcomes from the ISL (see Dobbins et al., 2020; Dobbins et al., 2021; Dobbins, Dooley et al., 2019a; Dobbins, Edgar et al., 2019; Dooley et al, 2019).

Contexts of Service-learning Projects

One service-learning project was focused on health and nutrition in Timor-Leste. In the Democratic Republic of Timor-Leste, one in six children under the age of five are malnourished, with close to 60% of children stunted, and an infant mortality rate close to 50% (Hughes, 2015). The agency providing access for the graduate student ISL was "Hamutuk Ita Ajuda Malu" (HIAM) Health, meaning "together we help each other." The students worked with leaders in the community who were small-scale farmers with the objective to include moringa for nutritional security. Moringa, native to parts of Africa and Asia, grows quickly in tropical environments and provide a good source of protein and other nutrients. HIAM Health worked with local municipality leaders to select communities for participation and offered training on composting, planting, and nutrition/cooking for the introduction of moringa into the diet.

The second service-learning experience was a project working with coffee cooperatives in Guatemala. Cooperatives in the international coffee sector help build farmer capacity, increase coffee productivity, improve farmer welfare, and increase access to alternative income sources (Lyon, 2013). The role of cooperatives and institutional relationships in the coffee sector cannot be underestimated, as the coffee industry is socioeconomically fragile (Avelino et al., 2015). Cooperatives incorporated agritourism and service learning as an additional source of income for purchasing equipment to increase production, acquiring additional land, and building meeting spaces to benefit families within the community.

The primary researcher led the evaluation team for the grant project and participated in the Timor-Leste ISL. The secondary researcher served as the teaching assistant and evaluation research assistant for the grant-funded project for both the online class and the ISL experience. She participated in both ISL projects and thus had relationships with both groups of students and was able to observe all students throughout the ISL experience. Her research inquiry focuses on intercultural competence and thus was the lens through which she viewed the analysis. The tertiary researcher participated in the ISL to Guatemala and served on the evaluation team for the grant project.

Results

The results section begins with crafted profiles as a benchmark for each student's preflective narratives and to illustrate changes in perspective in the post-reflection. In the discussion section, patterns in analysis are examined to provide collective descriptions of changes using the intercultural competence framework.

Timor-Leste

Bernice (Master's Student)

Preflection: I have dreamed about working abroad and helping people. I've had few international experiences, but I knew I wanted to be in less developed areas. I am anxious but determined to be curious! I believe I will be greatly impacted by what I see. I think the people of Timor-Leste live in impoverished conditions and there will be some political unrest from the recent election. I hope the people are kind and curious about us. I expect to gain the confidence needed to try other international experiences by re-evaluating my mindset, attitude, and perception of international agriculture development.

Post-reflection: The people of Timor-Leste are proud and resilient. The problems with malnutrition and food shortages are real. The language is very difficult, but the people are so happy when you try to speak it. In this political time, after an election, the people are happy and peaceful. The Christian faith is heavily embedded into the culture. Before I had many doubts in myself about international travel and development work. I thought I wouldn't be able to adapt to the cultural differences. I love this country and the people and feel blessed to have had this experience.

Caroline (Master's Student)

Preflection: My initial belief about visiting Timor-Leste is that the country is poor, has strong religious values, beautiful scenery, and disjointed government. I've seen images of shack homes, dirt roads, and lack of sanitation. Since Timor recently became an independent country, I believe there will be a lack of governmental stability with limited municipal infrastructure. I think the people will be welcoming/generous and not many people will speak English. I think there will be extreme poverty. I hope to gain a wider global perspective and have increased confidence for international travel to help me be more energetic, informed, and passionate about my course of study.

Post-reflection: The country is absolutely beautiful. There are many organizations working together to solve problems. Education is important to the country and the government supported schools, especially at the university level to make it affordable. Although the country has had a tragic history, the people are some of the kindest and most loving I have ever met. Around Dili

the roads and infrastructure were better, but the rural communities had more poverty. They are still trying to figure out their political system, but it was peaceful for us. The people are caring, generous, loving, and incredibly patient. This experience taught me that I have the skills and knowledge to overcome my internal barriers and highlighted my misconception of the culture prior to arriving.

George (Master's Student)

Preflection: I am excited to gain additional international professional experience. Timor-Leste is a Catholic culture infused with regional customs and beliefs that I assume will be welcoming. It is a country that has to desperately diversify its economy beyond oil. It is in political deadlock based on its most recent election results. I hope to gain experience in a country that is designated as "least developed" to gain project management skills for future employment.

Post-reflection: I gained a lot of worthwhile experience that will boost my professional career. I discovered the people are resilient and have endured many hardships. My experience validated my prior attitudes and beliefs and my love to immerse myself in other cultures.

Margaret (Doctoral Student)

Preflection: I believe Timor-Leste is a newly established country and proud to be independent. It is a small, developing country that lacks food security and large-scale industry. I think there is political unrest. The communities will be vibrant and family-centred with strong Christian beliefs and several languages spoken. My hope is to gain a greater appreciation of Timor culture.

Post-reflection: Timor-Leste is a country that has begun to define itself as a nation. Its growth is breaking through centuries of oppression. Timorese people are passionate, generous, and gracious to visitors. I was overwhelmed by the warm welcome and honoured by their love for us. Trust is coming back after the Indonesian invasion. It was safe to walk around with no threat of violence. The language is beautiful. We were able to hear culture, language, and history from those who experienced it. It was a beautiful country filled with passionate people working together for a better future. Timor-Leste government and international organizations are working together on many challenges. It's more than hope, it is promise.

Guatemala

Celia (Doctoral Student)

Preflection: I feel like Guatemala will help me to be more thankful for the conveniences and luxuries I have. I think politics in Guatemala are very complicated. I believe people will have a simple lifestyle and there will be different languages spoken. The economy is not strong but typical of developing countries in Central America. I think the people will be nice but reserved. I expect to gain insight on how I connect with people of different ages, backgrounds, and cultures. I'm hoping this trip's impact will be measured by the actions I take to lead my career and life paths to have interactions more often with people from different cultures.

Post-reflection: Guatemalan people are very friendly. There are a lot of different cultures that sometimes don't get along and still live in segregated regions. I didn't realize there was so much diversity in culture and language in Guatemala. They have customs that go along with the friendly attitude. I saw first-hand the hardships and discrimination native people of Guatemala endured in the past and they continue to endure. I feel there are a lot of people who care very much about trying to fix issues of corruption and inequality. I have a greater appreciation and understanding of the diversity and hardships of Guatemala.

Ruth (Doctoral Student)

Preflection: I am anxious to travel to a developing country for the first time. I believe it has a warm, embracing culture with a deep, enriched history. I think there are social, economic, and cultural struggles with an imbalance between indigenous and other populations causing disparity. I would like to gain perspective on agricultural production and barriers, as well as understanding other cultures different than my own.

Post-reflection: I found Guatemalans are friendly… I knew they were going to be a "warm" people, but nearly every person we encountered welcomed us and it felt genuine. I had no idea the farmers would be so aware of climate change, yet consistently litter even in their own fields. I was shocked by strong feminism beliefs instilled in some homes. Before, I did not quite grasp the extent of racism and discrimination in current day. Economically, many Guatemalans are desperately struggling to survive. Families are close-knit and often have generations living together. I still believe there is mass corruption impacting the people of Guatemala. It is a loving, but exhausting culture. I now understand the motivation for the immigration of so many Guatemalans and understand the desire for a better life.

Sparky (Master's Student)

Preflection: I am nervous because I do not know what to expect. I've been told we could be in an uncomfortable position. We will be going to a very poor region, and I will need to be aware of my surroundings. I am interested and curious to learn about a new culture, and how they view us. I am introspective about what kinds of things I will learn from the experiences and excited to learn through international travel. I will need to slow down to really learn what and why people are doing the things they do.

Post-reflection: I think Guatemala is a poor country but makes up for it with a rich culture. We saw the effects of war and colonization. There is still corruption in governmental and regulatory systems, but I think Guatemala just has not caught a break. I think the people are extremely kind and hardworking. These are people with hopes, dreams, and goals. We got to experience a human element to the equation that I never considered before. I am much more understanding and knowledgeable about the country's culture and traditions.

Tony (Doctoral Student)

Preflection: I have been to Guatemala before and grew up with Guatemalan customs from my parents. I am less aware of the social and political issues. I have an initial belief that there are political issues with corruption and narcotics. I expect to gain knowledge of the challenges farmers have, and how they are innovating their production for increased efficiency. I want to have personal connections with the local people, to further understand their culture and lifestyle, learning from them. I would like to implement these experiences to my career, including changes to how I think about a situation or a challenge.

Post-reflection: Guatemala is a beautiful place, but there are some problems with the country. The amount of trash is saddening. The people do not seem to care about their environment nor the beauty of the country. Something that gave me a bad attitude was the amount of discrimination between the Mayans and Ladinos. It is heart-breaking to know conflicts within the country revolved around the land being unjustly taken away from people, with no option but to fight back. Economically there is a big gap between people living in poverty and the rich.

Discussion of Themes

The research team peer debriefed open-coded themes from Timor-Leste and Guatemalan student journals to determine if the service-learning contexts were similar enough for comparison. Through peer debriefing, the authors compiled initial categories from each context and determined overlap in identified themes (see Figure 2). The compilation provided evidence that themes were similar enough for a collective sample for

theoretical triangulation with the Process Model of Intercultural Competence (Deardorff, 2006).

Figure 2
Compilation of Themes through Second-Round Peer Debriefing
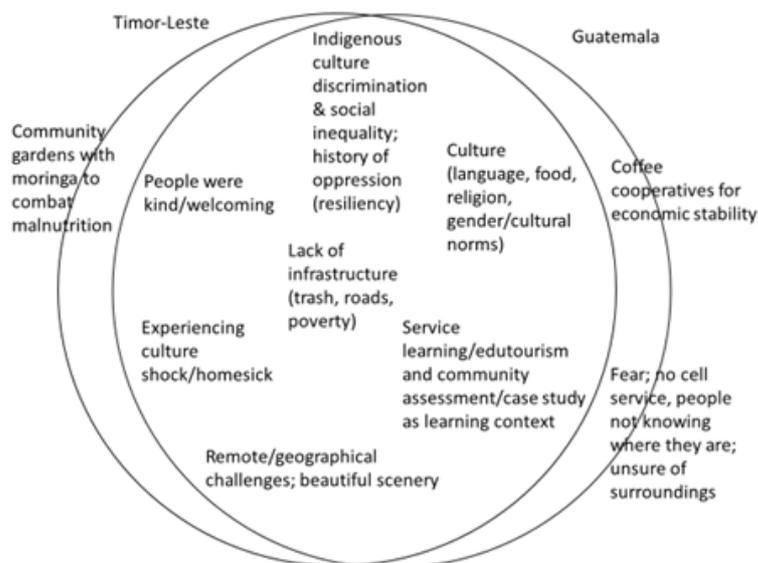
To determine if there was a shift from *individual* attitudes and knowledge/comprehension to *interaction* processes such as internal outcomes and external outcomes the researchers categorized the pre- and post-reflection data into predetermined codes from the model.

Attitudes

The attitudes codes from the preflections contained many assumptions, for example, "the people of Timor-Leste [are] used to impoverished conditions" (Bernice). The most frequently expressed attitude for both student groups was *curiosity and discovery*. Bernice described her "attitude about visiting Timor-Leste [as…] being curious." It was evident that students were eager to "learn about a new culture and how they view us" (Sparky).

Students were anxious about traveling and not knowing what to expect, as well as being away from family/responsibilities. Despite these reservations, students exhibited *openness* about the trip. Caroline "hoped to gain a wide range of personal growth opportunities including [a] wider global perspective and appreciation/acceptance for culture." Students anticipated a "bright, vibrant" (Margaret) culture in Timor-Leste. Ruth attempted not to form expectations about Guatemala "because I find it impacts my ability to appreciate and grow." George was the only student who expressed *respect* in the preflection from what he learned prior to the trip: "Timor-Leste's people are *resilient*. They endured oppression from Portuguese and Suharto."

In the post-reflections, *attitudes* appeared less frequently and the codes changed.

Students expressed *respect* most frequently, and no codes were identified as *curiosity and discovery*. Several noted the people were "proud" (Tony) and "resilient" (Bernice, George). Sparky stated, "overall, this is a place with a lasting culture that can be traced back to one of the most successful ancient civilizations of all time [...]." One student remained *open* after the experience, saying "I would still participate in one again" (George).

Knowledge and Comprehension

Deep cultural knowledge encompassed multiple sentiments. Before the experience, students wanted to "gain knowledge of the challenges that farmers in Guatemala have […] and how they are innovating their production for increased efficiency" (Tony). Students had "preconceived notions about the social culture and the issues" (Tony). Students also thought it was "going to be in a poor region" (Sparky) with a "simple lifestyle but with a rich culture" (Celia).

After the experience, the sentiment showed more depth of understanding. There were more specific indicators of observed poverty and discrimination in post reflection: "I now have a better understanding of the differences between ladino and indigenous people. Before, I did not quite grasp the extent of the racism and discrimination in the current day" (Ruth). Tony, the student most familiar with Guatemalan culture, stated, "before coming to the country, I knew about the discrimination against the indigenous population, but never learned why. During our stay […] we learned the history of this discrimination and how this horrifying racism against their own people began." Other socio-political issues affected the students. Sparky explained, "we saw the effects of the war and colonization that have existed in the country..." Ruth reflected, "I knew the [U.S.] media's portrayal of Guatemala was false and extreme, but I understood the motivation for immigration [....] I understand the desire for a better life [... because] economically, many Guatemalans are desperately struggling to survive."

In Timor-Leste, students were concerned about a "disjointed government" and "political unrest" (Caroline, Margaret) before the experience. Students also increased their knowledge about religion and politics. Caroline noted, "the Catholic religion is the most widely practiced religion, but old traditions and sacred homes are still important in the rural communities." Students found "people were happy and peaceful after the election" (Bernice).

Attitudes and knowledge about politics were distinct between the two student groups. Some attitudes were expressed as "I have an initial belief that there are political issues with corruption…" (Tony). These students perceived the Guatemalan government to be more corrupt after their trip. Ruth expressed, "politically, the corruption goes from the DMV to presidential candidates." While students who traveled to Timor-Leste perceived the political system more positively after their experience, the students in Guatemala grew more negative about the political structure.

Within the *cultural self-awareness* code, most students focused on enhancing their understanding of self in the preflection. Margaret wanted to "develop understanding of my role as a future change agent/educator." Caroline hoped "to gain a wide range of personal growth opportunities that include […] increased confidence for international travel." Sparky expected to strengthen interpersonal skills: "I want to listen, understand, and

formulate my thoughts before I speak. I am usually one to offer my opinion before I am asked. I need to slow down to learn why people are doing the things they do." Tony had an interesting perspective, as his parents were Guatemalan immigrants to the U.S., and he traveled to the country several times prior. Though he "grew up with Guatemalan customs from [his] parents," he was "less aware of the social and political issues." For him, "being able to have this connection is a way of really experiencing their culture and learning from them."

Within the post-reflection data, students who traveled to Timor-Leste reflected mostly on how their "beliefs and attitudes became more concrete after going on the trip" (Bernice). Caroline explained how she learned she "ha[s] the skills and knowledge to overcome my internal barriers." Another student described how the experience "validated [his] attitudes [...]. I love to travel; to immerse myself in another culture" (George). Bernice "had many doubts in myself about international travel and development work. I thought I wouldn't be able to adapt to the culture differences as easily as I was able."

Within *sociolinguistic awareness,* students had some concern in their preflections about not knowing the language and culture. Students worried about how their lack of language skills would impact the ability to interact in the local community but believed they would "gain insights to other people's situations, lifestyles, and working techniques and conditions […]" (Ruth). Celia reflected on her assumption "the languages spoken are different representing in some ways different cultures within the culture of Guatemala." However, students demonstrated gains in sociolinguistic awareness in the post-reflections. Celia noted, "I didn't realize there was so much diversity in culture and language in Guatemala." Tony indicated he "was aware of the Mayan dialects but did not notice just how many there really were. It's shocking that only a handful of those dialects are being practiced or taught." Margaret described her experience in Timor-Leste as "hearing living culture (language and history, museums, historic sites, traveling together)." Caroline described a specific change in her assumptions, stating she was "surprised by the amount of people who spoke conversational English around Dili."

Internal Outcome

Internal outcome codes emerged from the post-reflection narratives. Discovery was a concept weaved through *internal outcome* data. Building off attitudes established in his preflection, George "discovered th[is] culture [has] some of the most resilient people considering all the hardships they endure." Caroline mentioned "not only did this experience allow me to learn about the Timorese culture, but I [became] more rooted in my own culture." Students described misconceptions they held prior to the trip that changed due to the experience: "My original beliefs that they would be modest with strict moral values was not true" (Caroline). Ruth recognized her own assumptions about Guatemalan culture:

> I was so shocked by [host's] strong feminism beliefs instilled in her home. I made a sweeping assumption about gender roles and women's empowerment within Guatemala. I did not expect to find such progressive views in a country that is often looked at as 'behind'.

Students developed nuanced cultural understandings of the agricultural industry benefited their graduate studies. Many of these observations were compared U.S. agricultural production to Guatemala.

> It was great to see how proud [farmers] were about their products. They put all their efforts into making sure their product was of highest quality. They really cared about their crop, but also about their lands. This was a difference I see with farmers in the U.S. (Tony)

Several students in Guatemala built upon their *deep cultural knowledge* about discrimination and shifted toward an interactive process orientation in their understandings of the culture. Tony explained,

> People [had] little to no opportunities of working *their* lands to survive and make a living. The only option they had was to fight back. Of course, discrimination and racism started after the colonization period, but I believe this fuelled more hate towards their own people. Corrupt dictator leaders of the country did not help mend the situation, they just made it worse and fuelled more hate against each other.

The expression of their own cultural identity as compared to the host country provided insight and an "…excellent chance for me to reconnect with myself as a person and connect with other people different from me" (Celia). They were hoping to gain a deeper perspective on how they interacted in a different country than their own: "I hate how America is viewed by the rest of the world and I do not want to add to that" (Sparky).

Empathy was the most often expressed code within *internal outcomes*: "I am much more understanding and knowledge[able] about the country's culture and traditions. I think it is a country that has not caught a break. I think the people in this country are extremely kind and hardworking" (Sparky). Tony's empathy coalesced around justice: "It is heartbreaking to know these conflicts within the country began or revolved around the land that was unjustly taken away from the people."

The emotional exposure to malnutrition experienced by the students who travelled to Timor-Leste manifested in empathy within the post-reflections. Caroline stated, "even though the country has had a tragic history, the people are some of the kindest and most loving I have ever met." Other sentiments included "I love this country and the people" and "there is a special place in my heart for Timor-Leste" (Bernice). Others felt welcomed by the generosity and care expressed by the host organization: "I was overwhelmed by the warm welcome and honoured by their love for us" (Margaret); "The people are caring, generous, loving, and incredibly patient with us. I always felt welcomed in this country" (Caroline).

External Outcome

For Tony, "the experience altered [me] as a learner by looking at these learning experiences through different lenses…as a horticulturist … but also as a social scientist…

It altered my way of learning by reflecting on my experiences…this has turned me into a long-term and life-long learner." Empathy, developed within *internal outcomes*, provided an effective foundation for behaviour change after the experience: "I want to buy [the cooperatives'] coffee and support individuals [who] work so hard to provide for their family" (Sparky).

Professional Development

One theme identified outside of Deardorff's (2006) framework was a focus on professional development. Six out of eight students expressed this sentiment. Margaret wanted to "strengthen professional networking," while George expected to "gain a large amount of professional experience." Bernice anticipated her time in Timor-Leste would help her "make a decision on what I want to do for my career", specifically expecting "affirmation on if I want to pursue international agriculture development." Caroline paralleled Bernice's desire for professional affirmation through the experience: "I hope to gain a wide range of personal growth opportunities that include […] clarity about what PhD program I will pursue."

Conclusions and Recommendations

The results of this study presented several opportunities for growth, not only for the graduate students, but also for the principal investigators and the external evaluators. The researchers wanted a way to measure intercultural competence and found Deardorff's (2006) framework was an ideal tool for theoretical triangulation. The pre/post reflection approach has been used by other scholars, and the prompts about attitudes and beliefs provide insight into learning in informal learning settings, like international service learning. Unlike study abroad, these experiences were directed at USAID projects related to improving the human condition that was more appropriate for graduate students. Measuring holistic growth in intercultural competence is important for the preparation of society-ready graduates.

In the preflective narratives, students exhibited more themes in attitudes than for knowledge, internal outcomes, and external outcomes (Deardorff, 2006). Students demonstrated knowledge gains after the experience and several internal and external outcomes in their post-reflective narratives. There were differences between reflective narratives from students who travelled to Timor and Guatemala, with fewer internal outcome codes in the Guatemala group than the Timor group. The students who travelled to Guatemala were more exhausted at the end of the ISL and had more negative thoughts on their post-reflections. Few negative sentiments were present in the post-reflections from the Timor group. Despite differences between the two experiences, the two groups of students demonstrated similar intercultural outcomes along Deardorff's (2006) framework, indicating that despite contextual differences in experience, this framework maintains a robust perspective for analysing student experiences during ISL.

The graduate students in this study reflected upon their professional development through the ISL, an emerging theme that was not a part of Deardorff's (2006) framework. Further research is needed on whether this is a unique attribute to graduate students who

are focused on career development, as demonstrated by Witkowsky and Mendez (2018). While literature contains evidence connecting study abroad with career goals, it seemed particularly relevant to these graduate students, several of whom were within one year of completing their degree. The abductive coding framework allowed for the identification of themes outside of Deardorff's (2006) framework that could increase its application across graduate student contexts. Because Deardorff's (2006) methodology was a Delphi study using perspectives from intercultural scholars in higher education, the current study contributes to the literature through assessing the relevance of Deardorff's (2006) framework for evaluating graduate student intercultural development through ISL.

We concluded that intercultural competence is imperative for working in a globalized society (Liu & Dall'Alba, 2012) and universities should consider adding specific learning outcomes to better prepare graduate students for international work (Dimitrov et al. 2014; Hei et al., 2020). The increase in intercultural competence can be achieved with targeted service learning and research in international settings, as was shown in this study. It would be recommended that reliable and valid questionnaires (Liu, et al., 2020; Orozco-Vargas et al., 2020) be used to measure descriptive statistics on international competence with larger sample sizes in addition to the use of interviews, case studies, narrative diaries, papers/presentations, portfolios, observations, and pre and post reflection (Deardorff, 2006).

When graduate students experience a lack of growth in intercultural competence, could this be due to reverse competence (becoming more monocultural due to culture shock)? While not within the scope of this manuscript, students who travelled to Guatemala expressed greater culture shock in their post-reflections than the students in Timor-Leste. A critical analysis of data from student writing could provide an analytical perspective to further investigate this concept.

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