

The Impacts of a Short-Term Study Abroad on Critical Thinking of Agriculture Students

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Abstract

Today's college graduates must be prepared to think critically about complex global issues. Study abroad programs can be a great learning opportunity for students. The purpose of this study was to explore the impacts a short-term study abroad experience had on students' critical thinking. A reflective journaling process was implemented while on a study abroad program in Belize guided by the conceptual framework proposed by Roberts et al. Results revealed participation in a short-term study abroad program to Belize focused on agricultural issues resulted in expression of critical thinking, although students did not demonstrate all types of critical thinking. Based on these results, recommendations for future short-term study abroad programs are provided.

Introduction

As large agricultural organizations and agencies are becoming more multinational in the scope of their day-to-day operations, finding employees who are culturally competent and adaptable (Gorchels et al., 1999; Hart Research Associates, 2010; Hunter et al., 2006) and can think critically and solve problems (Bisdorf-Rhoades et al., 2005; Crawford et al., 2011; Rudd et al., 2000) is becoming increasingly important. Research has indicated the growing need for American university curricula to place more emphasis on international topics and globalization, in general (Acker, 1999; Fugate and Jefferson, 2001; Moore and Woods, 2003; Northfell and Edgar, 2014).

One way of preparing college graduates to think more critically about complex global issues is through international learning experiences (Bunch et al., 2013). International learning experiences can take many forms, including infusing college course content with a global context, international internships, and in-class discussions with people who have international experience (Bunch et al., 2013). One specific international learning experience is study abroad programs, which

provide students with opportunities to visit other countries and learn about other cultures (Harder et al., 2015). Employment recruiters in agriculture and natural resources sectors indicated they would give more attention to prospective employees who had a study abroad experience (Harder et al., 2015). However, for international learning experiences such as study abroad programs to be educational and rewarding to students, students must be physically, psychologically, and emotionally engaged in the experience (Bunch et al., 2013). However, there is very limited research documenting best practices for study abroad programs in the agricultural sciences. Agricultural issues present rich context to explore the interaction between social and natural sciences while focused on practical problems being faced by real people.

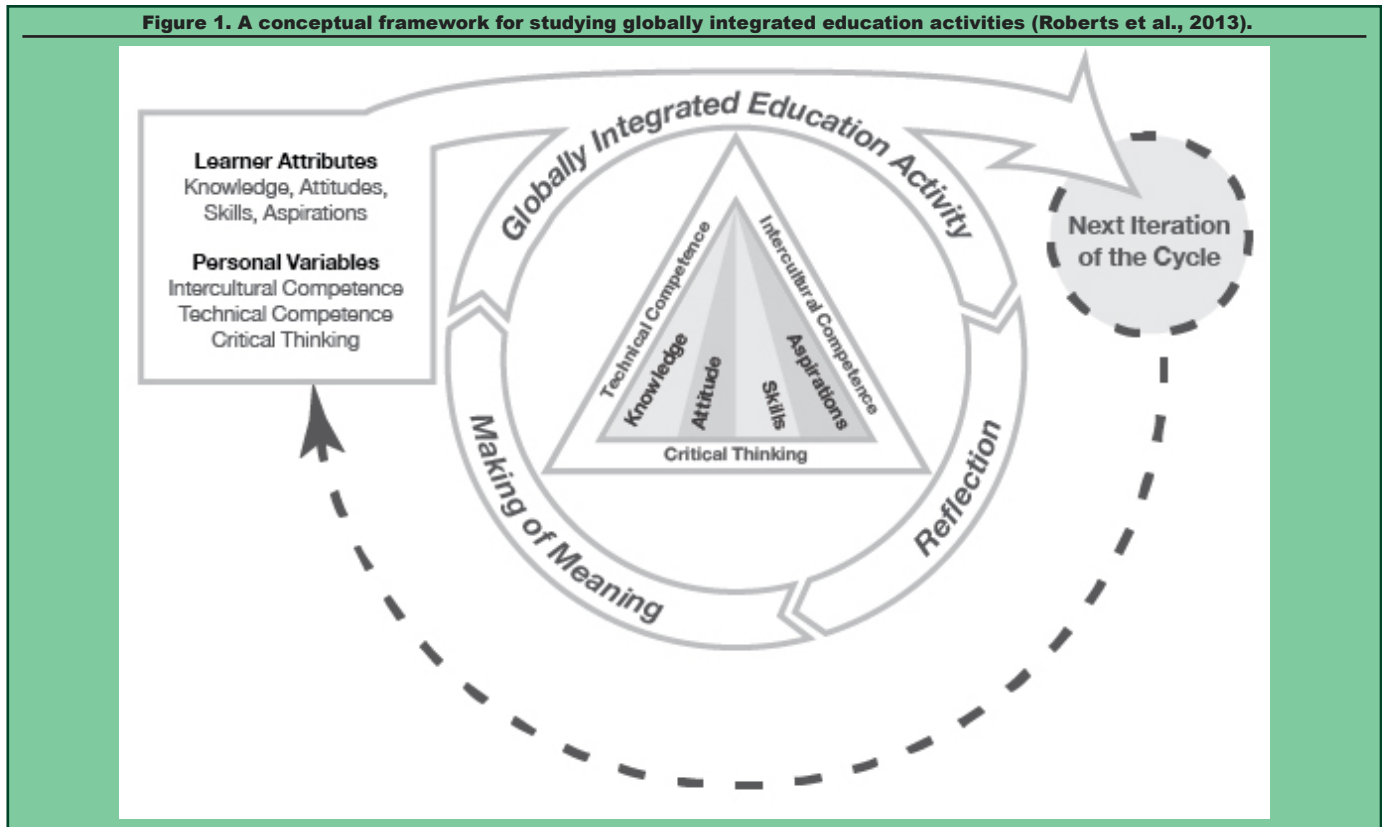
The purpose of this study was to explore the impacts of short-term study abroad experience on students' critical thinking using a reflective journaling process while on a study abroad program in Belize. Today's society is one of constant change, increasing complexity, and growing global interdependence. Professionals in the workforce need skills that include technical understandings, cultural awareness, and critical thinking (Lamm and Irani, 2011; Roberts et al., 2013).

This study specifically used the Conceptual Framework for Studying Globally Integrated Education Activities (Figure 1) proposed by Roberts et al. (2013), which supports key developmental opportunities for participants. Because a study abroad can have a wide range of impacts on participants it was important to employ a model that was holistic in nature. The model incorporates learner attributes (knowledge, attitude, skills, aspirations [KASA]), personal variables (intercultural competence, technical competence, and critical thinking) with emphasis on a globally integrated education activity (study abroad experience). A key element of the globally integrated education activity is its emphasis on reflection and the making of meaning that participants have with

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Figure 1. A conceptual framework for studying globally integrated education activities (Roberts et al., 2013).



respect to specific outcomes related to development in technical competence and intercultural competence, both which incorporate critical thinking and directly influences their personal KASA.

By grounding the framework in experiential learning (Kolb, 1984; Roberts, 2006), the experience becomes cyclical, providing participants with an opportunity to reiterate elements of each experience into the next. This includes experiences within experiences as is seen with many study abroad trips. Students move through the experience, building each day on the previous day's experiences and interactions. This development means students on day 10 of a study abroad are much different than they were on day 1. Ritz (2011) purported that when study abroad experiences were designed pedagogically, even a short-term experience (defined as two weeks or less) could also be experiential learning.

Perry et al. (2012) identified through their short-term study abroad research that the critical moment in transformative learning happens when "reflection and critical reflection become imperative to the learning process" (p. 682). They found even short-term study abroad experiences can bring about great transformation in participants if designed with intention. Intentional planning on the part of the educator can help maximize student learning.

Reflective journaling has been shown to be an effective way to engage students and help nurture critical thinking skills (Lamm et al., 2011; Sankey Rice et al., 2014; Thorpe, 2004) and can also be a tool to foster active learning (Thorpe, 2004). However, students have reported reflective journaling practices, over time, are

difficult to sustain without instructor direction (Harri-Augstein and Thomas, 1991). Journaling has been used for students to reflect on study abroad experiences (Lamm et al., 2011; Northfell and Edgar, 2014; Sankey Rice et al., 2014). Lamm et al. (2011) found students who took part in a study abroad to Costa Rica preferred to gain new knowledge through the experiential learning experience, which included the process of reflection. Northfell and Edgar (2014) recommended study tour programs should require daily reflections "to encourage meaningful and engaged learning experiences" (p. 39). Lamm et al. (2011) also recommended educators use multiple methods of reflective practice.

Critical Thinking

Since the early 1990s, scholars have challenged existing perspectives providing insight into the breadth and depth that is critical thinking. Facione (1990) embarked upon a Delphi study, which framed critical thinking as "the purposeful, self-regulatory judgment which results in the interpretation, analysis, evaluation, and inference as well as the explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which the judgment is based" (Facione, 1990, p. 2). The Delphi study also provided scope and parameter to critical thinking disposition and skill.

The more holistic approach to critical thinking development engages both an individual's disposition to think critically and his/her developed skill. In order to produce true critical thinkers, educators must provide opportunities for the development of both disposition and skill

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(Facione et al., 1995). Through the Delphi process Facione (1990) also facilitated consensus on the skill development of critical thinking. The consensus descriptions include the skill and sub-skill. There are six recognized skills and fifteen sub-skills. Interpretation (categorization, decoding significance, clarifying meaning) focuses on one's ability to "*comprehend and express the meaning and significance of a wide variety of experiences, situations, data, events, judgments, conventions, beliefs, rules, procedures, or criteria*" (Facione, 1990, p. 6). Analysis (examining ideas, detecting arguments, analyzing arguments) is the second recognized skill and promotes an individual's ability to, "*identify the intended and actual inferential relationships among statements, questions, concepts, descriptions or other forms of representation intended to express beliefs, judgments, experiences, reasons, information, or opinions*" (Facione, 1990, p. 7). The third identified skill, evaluation (assessing claims, assessing arguments), emphasizes one's ability to "*assess the credibility of statements or other representations which are accounts or descriptions of a person's perceptions, experience, situation, judgment, belief, or opinion; and to assess the logical strength of the actual or intend[ed] inferential relationships among statements, descriptions, questions or other forms of representation*" (Facione, 1990, p. 8). Inference (querying evidence, conjecturing alternatives, drawing conclusions) indicates that an individual should be able to "*identify and secure elements needed to draw reasonable conclusions; to form conjectures and hypotheses; to consider relevant information and to educe the consequences flowing from data, statements, principles, evidence, judgments, beliefs, opinions, concepts, descriptions, questions, or other forms of representation*" (Facione, 1990, p. 9). Explanation (stating results, justifying procedures, presenting arguments) recognizes that one must be able to, "*state results of one's reasoning; to justify that reasoning in terms of the evidential, conceptual, methodological, criteriological and contextual considerations upon which one's results were based; and to present one's reasoning in the form of cogent arguments*" (Facione, 1990, p. 9). The sixth skill, self-regulation (self-examination and self-correction) provides that one must "*self-consciously [sic] monitor one's cognitive activities, the elements used in those activities, and the results educed, particularly by applying skills in analysis and evaluation to one's own inferential judgments with a view toward questioning, confirming, validating, or correcting either one's reasoning or one's results*" (Facione, 1990, p. 10).

Methods

During the University of Florida's 2015 spring semester, three Agricultural Education and Communication (AEC) faculty members led eight undergraduate students through a ten-day study abroad program focused on exploring agricultural issues. One faculty member had prior experience in Belize and took the lead

on planning the study abroad. A different faculty member taught the on-campus version of the course and took the lead on the academic portions of the study abroad experience. She adapted the syllabus to fit the study abroad experience in Belize. The third faculty member has interest in co-leading this program in the future and volunteered to assist to learn the program and content.

Student recruitment concluded in December 2014 when final approval was given by the university International Center for the eight qualified students who had applied to participate. Five of the students were Agricultural Education and Communication majors (1 male, 4 females; all white; ages 18-22); two students were Plant Science majors in (1 white male, age 23; 1 white female age 62), and the remaining student was a Microbiology (1 multicultural – Hispanic/Pakistani female, age 25).

The class had three 1-hour meetings before the 10-day trip. Students selected and researched an agriculture or natural resources-related issue impacting Belize and presented it to the rest of the students and faculty team before the trip to Belize. Issues were approved by the faculty. Students were asked to complete that assignment in pairs, so there were four pairs/issues. Students could stray from the original issues they researched if they wished and each were asked to choose one issue individually he/she were interested in and collect information on while in Belize.

The study abroad experience itself consisted of visits to several farms and cultural locations, including cacao and vegetable farms, Maya archaeological sites, local farmers' markets, and a coastal snorkeling excursion. At the end of each day, students gathered with the faculty team for debriefing sessions, where each student reported back to the group on what they observed about their chosen issue. During that time, all the students could provide input on each issue and could begin to connect overlapping parts of the various issues. The goals of the group's time in Belize were to provide students with as many opportunities as possible to interact with Belizeans, to find out about the issue that students were researching, and to learn about Belizean culture.

While abroad, students were also asked to take photos and were given a set of questions to use for recording journal entries about their experience in Belize. There were three 1-hour post-trip class meetings in which students formalized the data they had collected and shared their experiences through blogs they had created about what they had learned. Each blog was uniquely designed by each student, allowing for freedom of creativity, and contained photographic and written components.

Data Collection

The University of Florida's Institutional Review Board approved all activities in this study. Data were collected through reflective journaling. As a part of the course, during the study abroad, participants were required to journal daily by responding to a series of

prompting questions. Participants were provided time each evening to complete their journaling. After the study experience, the students were also asked to respond to a similar set of questions. Participants submitted their journals in electronic format to the instructors within two weeks of the end of the study abroad. The daily (D) journal prompting questions were:

- D1: What were your observations about the culture today?
- D2: Did your perceptions change today? How?
- D3: Which activity from today had the greatest significance to you? Why?
- D4: What did you learn today? How will it affect you professionally?
- D5: What did you see or learn today that challenged or changed your previous thinking? Why did it challenge or change your thinking?
- D6: What do you hope to learn tomorrow?

The summary (S) journal prompting questions were:

- S1: Overall, what were your observations about the culture?
- S2: Did your perceptions change over the course of the study abroad experience in Belize?
- S3: Which activity had the greatest significance to you? Why?
- S4: What did you learn from the study abroad experience? How will it affect you professionally?
- S5: What did you see or learn from the study abroad experience that challenged or change your previous thinking? Why did it challenge or change your thinking?
- S6: How does the issue you selected to research in Belize compare or contrast with that issue in the home state?

The daily journal prompts (D1 to D6) and summary questions (S1 to S6) were derived from the Conceptual Framework for Studying Globally Integrated Education Activities (Roberts et al., 2013). Prompts were designed to help students reflect on intercultural competence (D1, D2, D3, S1, S2, S3), technical competence (D2, D3, D4, S2, S3, S4, S6), and critical thinking (D5, S5, S6). Prompt D6 was designed to help students process their experiences of the day and mentally prepare for the next day. The order of the daily prompts was based on previous experiences of the researchers with student reactions on study abroad programs. The summary questions were ordered in a way to match the daily prompts. This article reports the results from the critical thinking analysis. A companion article focused on the technical and intercultural analysis.

Data Analysis

Each student's individual journal entries were moved into a single document, and all identifying information was removed. Each student was assigned a participant number (P1 through P8). Line numbers were inserted in the data file to allow referencing specific quotes or

information. All data were coded by one researcher who attended the study abroad and then verified by two additional researchers who also attended the study abroad as a form of member checking to establish trustworthiness in the research (Lincoln and Guba, 1985).

Data was analyzed using a basic thematic analysis (Boyatzis, 1998). Coding for critical thinking used the existing categorization from the Critical Thinking Delphi Report (Facione, 1990), which are (a) interpretation; (b) analysis; (c) evaluation; (d) inference; (e) explanation; and (f) self-regulation. In many cases, multiple related ideas were observed in sub-themes. In these cases, the ideas are indicated by italicized labels.

Results

Interpretation

One participant (12.5%) showed interpretation in her journal. Interpretation was expressed through applying their own meaning on what they experienced in Belize in comparison to the U.S. For example, P1 used a judging statement when referring to the poor living conditions in Belize compared to her experiences in the U.S.

Analysis

Analysis was evident in journals by all our participants and typically expressed through participants examining their own ideas about what they saw and heard. Participant 1 wrote about the housing conditions and presumed income level of the people who lived in those houses. Participants also clarified their ideas about how land is allocated compared to the U.S. (P6), about the development (modernization) of a community – specifically referring to the progressive Mennonite community of Spanish Lookout (P6), the general cleanliness of villages in Belize in comparison to other villages (P6, P1), and the condition of the roads (P2). Participant 4 observed people walking and biking places, instead of using motorized transportation.

Participants also expressed ideas about Belizean people. Participant 3 shared how mothers working outside the home have impacts on children, while P5 believed women and men have equal status in Belizean society. In referencing the culture, P7 shared how they live balancing the ancient Mayan culture and modern culture. Participant 2 expressed her belief that Belizean people are resourceful and hard-working, while seemingly in contrast, P4 discussed a leisurely lifestyle in Belize. We were in Belize close to a national election and based on her observations, P1 believed the people of Belize have a powerful voice in their future.

Because of our visits to several education institutions, participants were able to clarify their own understanding of those institutions. Participant 1 used her knowledge of the U.S. system to understand the Belizean system, and P4 acknowledged the Belizean system was more advanced than originally thought.

Given our focus on agricultural issues, participants clarified their own meanings on many food and agri-

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cultural subjects. Participant 1 enjoyed learning about “typical” foods. Many comments focused on agricultural production. Ideas expressed by participants included the opportunity to scale up production (P1), increase exports (P1), the safety of the food supply (P3), organic production techniques (P8), and the notion of farming as a hobby (P6). In reference to farmers, Participant 2 concluded farmers have great soil, but little technical support. Participant 2 expressed her new understanding of how farmers in the U.S. do not have it as tough as they think. In thinking about the long-term importance of agriculture, P8 shared how our visit to the Mayan ruins made him see how agriculture can affect a civilization.

In addition to making meaning out of their own observations, participants also analyzed what they heard from the people. Examples included P7’s analysis of her interactions with the staff at the University of Belize on their plans for continuous improvement of the facilities and curriculum. Also, at the University of Belize, P3 was particularly impressed with her conversation with a young female student. One of the more interesting people we met was “Mr. Pop,” a farmer in southern Belize. Based on his time with us, P6 believed he was “truly one of the most happiest, joyful people I have ever met” (line 1738).

Inference

All our participants expressed inference through making assessments and drawing conclusions based on what they saw and heard. Every participant made conclusions about Belizean people. Several participants focused on culture. Participant 2 concluded the Mayan culture is alive and well in Belize and P8 said different cultures have different ways of interacting. Overall, a general sentiment was Belize is very accepting of cultural differences (P7). Another common set of conclusions focused on the friendliness of the Belizean people. Participant 1 said all Belizeans were friendly, and P6 referenced the van driver talking with everyone he saw as an indicator of friendliness. Participant 4 concluded friendliness can open doors. Related to friendliness, P2 shared that happiness was everywhere. Another theme about Belizean people focused on their work ethic and approach to their work. Participant 1 concluded Belizeans like doing things by hand, and P6 said the Belizeans showed people can accomplish anything they put their mind to. Belizeans think anything is possible (P1), and regardless of background, hard work can help an individual achieve much (P5).

Another theme focused on the Belizean people’s approach to their life situation. Some examples were people do not see themselves in poverty (P1), people are connected to the Earth (P2), Belizeans are prideful people (P3), people are adaptive (P2), people need to look for new ways (P1), people are involved in change (P1), people desire to make a positive impact in their communities (P1), and Belizeans do not like to waste (P1). Participant 1 concluded there are problems in Belize, but there are also people who can solve those

problems. Participant 3 believed innovators will change their country. Referencing family unity, Participant 6 concluded Belizean families stick together.

Another inference theme focused on learning and education. Participant 3 concluded people can learn anything at any age. Learning about the past is important to the future (P7). Related to agriculture, Participant 3 concluded it is important to educate all people about agriculture. In terms of educating farmers, contrasting views emerged. Participant 4 concluded home state farmers could teach Belizean farmers, while P7 concluded Mr. Pop’s (a Belizean farmer) ideas would be good for American farmers.

Related to agricultural production, participants concluded Belizean production was more capable than originally thought (P1). Similarly, P5 said Belize is a small country that provides on a global scale. Referencing the type of agricultural production, P8 concluded low-cost, practical solutions are needed everywhere. Several participants focused on organic and sustainable farming practices. Some common conclusions were their production practices are focused on sustainable techniques (P2) and organic production in Belize was not a fad (P3). Participant 4, however, did acknowledge organic farming is difficult. Related to gender, P3 concluded women were not viewed as equal in agriculture in the U.S. In terms of agricultural awareness, Belizeans believed more people should be involved in agriculture (P7).

Another set of inferences focused on food security. Participant 1 concluded Belize was not as food insecure as she had originally believed. She also came to understand community gardens could be a solution for food insecurity (P1). Another participant (P4) concluded small family stores were important.

Two participants drew conclusions about medicinal plants. Participant 5 believed medicinal plants are part of Belize’s national authenticity. Participant 7 concluded Belizeans take pride in their plants, but Americans know very little about plants.

Several participants drew inferences on a much larger scale, referencing a more holistic view. For example, P5 said everything in Belize is based on the whole. Participant 2 concluded Belize is larger than life and “we are truly one world, one people.”

Self-Regulation

Self-regulation focuses on someone monitoring his or her own thinking on a given subject. All our participants were very self-regulated in their thinking. Seeking information was one example, with P1 realizing the need to develop internal questions, and P5 needing to ask more specific questions.

Another set of self-regulating behaviors dealt with biases. Several participants realized their preconceived ideas might influence their interpretation of an event. Participant 1 realized her assumptions might not be correct, and P5 concluded he should watch his own biases. Participant 6 concluded her biases influence how she interacts with other people. Participants learned

they should not rely on preconceived notions (P5), and they must have an open mind (P6). Participants planned to change the way they think based on what they learned (P1) and question why they do things a certain way (P4).

Another example of self-regulation was the importance of hearing multiple perspectives.

Participant 5 summed it up best when he said every story has multiple perspectives. Participants said that it is important for individuals to be open-minded (P5) and a person cannot assume everyone knows everything (P6). Participants 2 and 7 both agreed it is essential to gain perspectives of others. Participant 2 recognized that the study abroad participants had not heard from a specific group of people (progressive Mennonites), which meant the study abroad students were missing a valuable perspective. When gaining perspectives of others, P1 concluded interaction with people is better than observation.

Participants also monitored their own thinking about culture. Participant 4 realized a need to learn more about her own culture and her home state. Participants also realized a need to be more aware (P8) and more conscious (P4) of people's cultures. Participants also expressed desires for changes in their future behaviors, such as the need to be open to other cultures (P6), the need to accept other people's differences (P3), and a general understanding that diversity is good (P6).

Self-regulation was also displayed through a desire to make a difference. Participants 2 and 3 indicated their need to learn how to make a difference in the world. Participant 2 also said she now believes a few people can make a big difference. A need for passion about a given issue was also deemed important (P1, P3). Participant 6 reflected that people can accomplish anything they put their mind to.

Participants also learned the relativity of their own assumptions. Participant 4 realized how good she has it at home. Participant 1 realized her conditions at home were not as bad as she once thought. Participant 7 now understands what she considered as poor may not be the same as what other people think. Participant 2 compared herself to a girl she met and said "I, need not complain about how hard it is to plant or do something."

Another self-regulation theme was the recognition of the importance of certain issues for each participant. In general terms, Participant 4 said she now realizes what is important to her. More specifically, Participant 2 found an increased love for agriculture and the land. Participant 4 now realized the importance for her to be more positive and create good energy. Participant 8 said it is important for him to think beyond plants and look at the people in the local communities; to consider multi-national stakeholders when working on an issue; and, in general, to appreciate everything more. Participant 4 said she should be more conscious about important things.

Participants also expressed self-regulation in their thinking about global awareness. Participant 3 probably said it best when she said, "There is more to the world

than just my little bubble" (Line 796). Participant 5 realized her prior assumptions about other countries were not correct and was reminded that all countries are not full of big cities. Participant 1 now understands the interconnectedness of the planet.

Participants also thought about the value of sharing this experience with others. Participant 4 acknowledged a need to share what she learned with others and P1 saw the importance in sharing with others. Participant 5 was looking forward to using his experiences to teach others.

Conclusions

Participation in a short-term study abroad program to Belize focused on agricultural issues allowed students to exhibit critical thinking, especially analysis, inference, and self-regulation. However, students seldom demonstrated interpretation and did not exhibit evaluation or explanation.

Instructors of short-term study abroad courses should be encouraged to integrate strategies that help students apply critical thinking skills to process their educational experiences. Assigning prompts in a reflection journal resulted in students in this study applying skills within interpretation, analysis, inference, and self-regulation. However, there was not enough data to support the consistent use of evaluation or explanation skills. Evaluation is the application of skills to assess the credibility and claims made by someone (Facione, 1990). The lack of evidence for evaluation and explanation implies students failed to question the validity of the information they were told by the various individuals with whom they met; this is a concern that needs to be addressed. Explanation requires students to provide evidence of their reasoning to draw a specific conclusion (Facione, 1990). Again, this is a concern, as students wrote a multitude of conclusive statements in their journals but failed to provide systematic evidence of how they reached those conclusions. Course assignments should be structured to require students to demonstrate evaluation and explanation skill sets; a variety of strategies exist for doing so (Cottrell, 2011).

The evidence from this study supports the ability for study abroad courses to develop students' critical thinking skills. Course objectives, focus of international activities, and assignment requirements can influence the extent to which students develop in all three areas. Instructors are encouraged to be intentional in their design to maximize the potential value of the study abroad experience for students. As a starting place, instructors should remember that all learning builds on previous learning and individuals construct their own meaning based on their experiences (Kolb, 1984; Roberts, 2006). Instructors should develop their study abroad programs based on thinking about how these experiences will create transformative changes in their students (Yorks and Kasi, 2006). Study abroad learning experiences are very different than classroom learning,

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and instructors should think more holistically about the experiences they wish to create for their students. Yorks and Kasi (2006, p. 43) presented a good model that emphasizes “whole-person” learning and the importance context plays in learning.

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