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## AN ASSESSMENT OF STRENGTHENING MINORITY STUDENT EDUCATION THROUGH GLOBAL COMPETENCE AND EXPERIENTIAL LEARNING

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#### **Abstract**

A three-year study abroad training program with experiential learning opportunities was provided to students to better understand the processes that shape the global agricultural and environmental systems. Thirty-six students from Tuskegee University, Alabama, Delaware State University, Delaware, and Alabama A&M University, Alabama, were provided an opportunity to visit EARTH University and the Tropical Agricultural Research and Higher Education Center in Costa Rica; two well-known institutions for their hands-on training in sustainable agricultural and environmental systems. The students were involved in classroom discussions, case studies, and field activities under the supervision of specialists in solving real life problems. These exercises were in several areas of agriculture, environmental sustainability, and community engagement. Students were surveyed after the three-week program for each of three years, 2016-2018. In general, the students reported that they were positively impacted through their experiences, especially the multidimensional perspectives of problem solving, hands-on learning, global awareness, and community engagement.

**Keywords:** Global Competence, Experiential Learning, Study Abroad Program, Minority Students, Agriculture and Related Sciences

#### Introduction

In spite of the apparent growing interest in the U.S. in international education and the global economy (Hayward, 2000; Zogby, 2009; Crotty, 2012), and although numerous awareness and calls have been made to increase study abroad participations, the national numbers are still quite low (Hayward, 2000; Reimers, 2009a; Reimers, 2009b; Crotty, 2012; Zhai and Scheer, 2004). In recent years, the breadth of disciplines represented and number of countries visited by students have increased; however, study abroad participants are mostly social sciences and humanities majors and exhibit little ethnic, economic, or discipline diversity (Zogby, 2009; Hayward, 2000; NAFSA, 2006; Sun, 2012; Clyne and Rizvi, 1998; Austin, 2007). The percentage of American students, especially underrepresented minority students, who command a level of knowledge necessary to adequately understand global situations and processes is very small, and many American students lack even basic world geographic or cultural knowledge (Sun, 2012).

The success of the U.S. in the global arena and maintaining a competitive edge and leadership will increasingly require colleges and universities to produce graduates who can operate competently in domestic and international settings (Gwynn and Thompson, 1990; Pittaway et al., 1998; Zhao et al., 2007; Cooperative State Research, Education, and Extension Service – International Science education [CSREES-ISE], 2008; Association of Public Land-Grant Universities [APLU], 2017). There is a growing demand for workers with foreign language skills and cross-cultural competence both in private and government sectors. Deficiency in

global competency leaves many American students educationally and economically handicapped (Institute of International Education, 2007; Sun, 2012). There is an urgent need to increase the participation of students in international programs, particularly minorities, in science-related fields, reshape and internationalize current curriculum and co-curriculum of higher education institutions, and develop a comprehensive international agenda for college students across curricula.

Agriculture, natural resources, and environmental sustainability are affected by many factors; thus, society and communities must always be prepared to react, adapt, and think innovatively and futuristically. Because of today's world of global interactions, it is necessary to combine the domestic and international approaches to food systems in education and training programs. Agricultural, natural resources, and environmental sustainability education in institutions needs to be globally connected for students to engage in the ideas, technologies, and solutions that are emerging across the globe (APLU, 2017). What is more, important is for students to understand that even domestic food systems are international in scope; what we eat comes from across the world and what producers grow is exported globally (USDA-Economic Research Service [ERS], 2016). The educational system in agriculture, natural resources, and environmental sustainability needs to prepare students to build skill sets that enable them for work in a global economy. This requires a paradigm shift in the education and training of the next generation of agricultural and environmental scientists that ensures that they are exposed to systems level understanding and thinking, critical to transformative global solutions. Such an approach fosters a curriculum that balances disciplinary excellence with strong integrative and cross-disciplinary focus.

The National Academy of Sciences (2009) recommended that academic institutions with programs in agriculture use approaches, including broadening student opportunities for research and internships, particularly "exposure to international perspectives by supporting targeted learning-abroad programs and by incorporating international perspectives into existing courses" in the student training programs. Exposing students to international learning experiences through interdisciplinary curricula, global study opportunities, and international internships, is critical to their career development in agriculture and related sciences. Students need international knowledge, intercultural communications skills, and a global perspective integrated into their educational pursuits and training. More than any previous generation, today's students will have to develop a global perspective and be knowledgeable about global issues and other nations in order succeed and play any substantive and significant role on the global stage.

In order to address these issues, three 1890 Land-Grant Universities in the U.S., Tuskegee University, Delaware State University, and Alabama A&M University partnered to provide an international summer internship and experiential learning program (Study Abroad) for American students in Costa Rica, Latin America, in collaboration with EARTH University and the Tropical Agricultural Research and Higher Education Center (CATIE). The intent of the program was to broaden and strengthen students' training that would have a positive impact on the quality of agriculture, natural resources, and environmental health sciences education at the aforementioned universities and enable them to engage and understand other cultures.

The purpose of this study, therefore, was to assess how the program strengthened student education through global exposure and experiential learning. The specific objectives were to: (1)

examine students' perceptions of the program, and (2) examine instructors' perceptions on the program.

#### **Literature Review**

This section focuses on selected studies on study abroad programs. For instance, Madsen et al. (n.d.) assessed understanding the complexities associated with managing difficult interactions overseas during study abroad experiences. They used an open-ended survey to interview a group of 39 students who participated in study abroad programs, through convenience sampling. The researchers reported that common difficult situations for students were traveling issues, language barriers, socializing, work/school, social violation, and cultural assimilation. They also found that the usual positive means by which students dealt with the situations were by seeking help, learning the language, cultural immersion, and use of nonverbal communication. On the contrary, the usual negative ways students dealt with the issues were defensiveness and avoidance. The researchers probed the students further and asked them what they would have done differently. Many indicated that they would have responded the same way. However, others indicated that they wished they were more prepared, were more in control, were more culturally aware, or had sought help.

Cubillos and Ilvento (2002) examined the impact of study abroad experiences on students' self-efficacy perceptions among foreign language learners. The authors defined self-efficacy based on Badura (1989); thus, "it refers to people's judgment of their capabilities to complete a task successfully." Thirty-nine students participating in both short- and long-term study abroad programs in foreign languages completed pre- and post-surveys at the beginning and ending of their programs to ascertain self-efficacy. Additionally, students completed a survey related to their interactions with people of their host countries. The results showed that participation in a study abroad program had a significant effect on self-efficacy perceptions on foreign language specific skills, such as reading, writing, listening, and speaking. Moreover, the self-efficacy gains were found to be related to the degree and type of interaction with host country citizens or residents. In other words, the more the interaction, the better the self-efficacy.

Gemignam (2009) assessed understanding the study abroad experience of university students. The author conducted interviews with 13 undergraduate students who studied abroad in different study abroad programs. The author asked three questions but two are germane in this case. The first is, "what do undergraduate students perceive they learned from studying abroad?" The findings revealed that students' perceptions can be categorized into nine themes; specifically, personal development, fulfillment of expectations, impact of the U.S., travel, people, open, limitations, being there, and connection. The second is, "How do undergraduate students who studied abroad perceive culture learning?" The students, in most cases, explained that they were "open", recognizing that the world is full of different perspectives. As a result, many connected with the people of the host country, and where "connection" was made, the study abroad regime was made easier.

Machorro (2009) analyzed the quest for global competence through the effects of study abroad literature on Oregon State University students. In this study, two sets of students were surveyed, those who were interested in study abroad programs but had not yet participated (potential travelers), 36 students, and those who had participated in the study abroad programs within the past five years (returnees), 27 students. Both groups were asked to study five study websites and

answer a set of questions. The results showed that potential students and returnees answered the questions in opposite ways. The potential students were more swayed by the visuals of the literature than the content in deciding if they liked or disliked a program. Whereas, the returnees were more focused on the content of the websites than the visuals. The author concluded that that notwithstanding, global competency is a plus for American university students in an increasingly global society, and therefore, students must be encouraged to participate in them.

Alghamdi and Otte (2016) investigated the challenges and benefits of study abroad. They found that the challenges for institutions is to provide adequate institutional and personal support for students studying abroad. On the student side, they found that the challenges were language barriers, social integration issues, and financial challenges. Also, they reported that the benefit for the "origin" institution is financial gain, and the benefits for students and host institutions are crosscultural understanding and global awareness.

Fukai (2016) analyzed the impact of study abroad programs on post-graduation job search. The author surveyed 72 City University of New York students online who participated in study abroad programs over a five-year period. The results revealed that the employment rate of study abroad participants were no better or worse than others. Despite this, those who participated in study abroad programs were of the view that they acquired soft skills; for example, communication skills, teamwork, problem-solving skills, adaptability, maturity, flexibility, independence, openmindedness, motivation, and self-awareness, which allowed them to get a job. Also, the participants thought participating in the study abroad programs enriched their resumes. The researcher surmised that the study abroad programs can be used as a tool for career development.

## Methodology

From 2016-2018, a total of 45 students and faculty members travelled to the host institutions, EARTH and CATIE, Costa Rica. The breakdown was as follows: 2016: 12 students, 3 faculty; 2017: 12 students, 3 faculty; and 2018: 12 students, 3 faculty. The host institutions offered opportunities for language and cultural trainings, scientific research, and visiting research sites, facilities and rural communities. Travel scholarships were offered to selected students to fund their travel expenses. The process had four major components, namely, planning visits, student recruitment, student selection, and experiential learning through the internship program. These are discussed below.

### **Planning Visits**

At the beginning of the program (spring semester of each year), a technical and logistic plan with our partners in EARTH and CATIE in Costa Rica was developed, and the necessary arrangements (accommodation, meals, transportation, facilities, and tours) for hosting students and faculty during the program were made. The work plan detailed: (a) tasks to be accomplished, (b) units or persons responsible for the task, (c) activity schedule with dates for the completion of each task, (d) other elements, such as proper venue arrangements; and facilities/rental arrangements for necessary equipment, (e) expected results/outcomes, and (f) budget projections for each task/activity to be performed.

#### **Student Recruitment**

Students were introduced to the international exchange program through a series of seminars in the first semester of each year. Information materials, including brochures that provided program information were developed and distributed to potential participants in the program in January of each year. Completed applications consisted of an application form; a personal statement summarizing previous research and education experiences, future education and career goals, expectations from the program, and topics of interest in food, agriculture, and environmental health; transcripts; and two letters of recommendation.

#### **Students' Selection**

The applications were reviewed in March of each year by a committee composed of participating faculty and investigators at each institution. Applicants were evaluated using the following criteria: academic performance and course work, letters of recommendations, evidence of an interest, and applicable international training in agriculture and related sciences. In addition, the committee sought evidence of a strong work ethic and commitment to research, education, and outreach. The initial review narrowed the pool to about 10 qualified candidates per institution each year (30 students). The committee then ranked the students on several other criteria. From the 10 candidates, four students per institution were selected (12 students). Minority students majoring in agriculture, natural resource sciences, and environmental health sciences, who had no previous study abroad opportunity for research or education received priority.

The students selected manifested a genuine interest in exploring a global experience, desire to participate in an ongoing research, education, and outreach training project, and enthusiasm about meeting the challenges of international study and travel programs. Most of the participants were from groups (minorities and females) traditionally underrepresented in the sciences. To make sure that the program was run professionally and to protect students' privacy and the institutions against liability, a handbook, which included some basic Spanish language, safety guidelines, travel advisories, medical insurance needs, contact information, and maps, was provided. In addition, a code of conduct and liability release documents were developed and signed by each participant.

## Students' Experiential Learning and Internship Program

At least 12 students, accompanied by three faculty members, traveled to Costa Rica each year. The internship program focused on providing opportunities for students to interact with faculty and students in Costa Rica. The program was composed of activities such as Spanish language training, Costa Rican social and cultural trainings, research and educational training in agriculture, natural resource sciences, and environmental health sciences. Students were required to register for a 3-6 credit hour study abroad course, and in collaboration with the mentoring faculty, develop an area of emphasis or specialization that best suited and enhanced their experiences and desires. The faculty was involved in mentoring students (providing them guidance, direction for critical thinking and analysis of internship's challenging issues) and working with Costa Rican counterparts. The international collaborative efforts with Costa Rican colleagues helped to enhance students' learning experience and faculty teaching skills by working on issues identified by all partners. The participating faculty evaluated the program each year. Their assessment of the program was crucial in making the necessary changes and modifications for its long-term improvement.

While in Costa Rica, students and faculty were provided the opportunity to attend lectures in introductory Spanish, visit research laboratories and field sites, and interact with Costa Rican students and faculty for social and cultural related activities. Students were prepared for the cultural and linguistic environment of Costa Rica and the host institutions. Protocols were developed and implemented to help students quickly adjust to the host institutions' country, and all activities conducted by students were under the close supervision of the faculty members of the three U.S. institutions and the host institutions. Each student was required to prepare a daily journal of his or her activities and experiences and a final report to summarize his or her experiences. Each student presented his or her final report before departing from Costa Rica.

Furthermore, immediate and continuing impacts were assessed through evaluations and discussions. Weekly program meetings during the program period were held for immediate feedbacks to ensure quick adjustment and speedy problem solving based on suggestions by students and faculty. At the end of program and before the students returned home summative evaluations were conducted through the administration of pre- and post-program surveys and exit interviews of student participants and faculty. A copy of the post-program survey is shown in the Appendix. Students also assessed the effectiveness of the program and suggested potential recommendations for future improvement and better management of the program. Upon return to the U.S., students led in a series of presentations and seminars organized by the faculty. They used the opportunity to educate their fellow students and the general public about the multidisciplinary and global aspects of agriculture, while sharing their own Costa Rica experiences. The authors were interested in building educational relationships with institutions abroad that would help the students strengthen their global competences and experiential learning experiences; therefore, students' views were sought on the program, based on the survey in the Appendix. Additionally, in-country/host country instructors' perceptions of the program were sought.

#### **Results and Discussion**

## Student Survey Results General Expectations

The authors wanted to know if the experiential learning/study abroad program met students' expectations, so we asked, "Did this study abroad experience meet your expectations? The students' survey results indicated that the study abroad program in general met the students' expectations. They were able to learn about agriculture and agrotourism through a different perspective. They were particularly impressed with the hands-on experience they were exposed to. However, students would have preferred more information on what to expect in Costa Rica (Some students did not have appropriate clothing or the right medication to survive in a new environment). A student said, "The experience was good. I wish there was a better planning in preparations to come here; that is, packing list and medication."

## Personal Growth and Development

Regarding personal growth and development, we asked two questions. Firstly, "How have you grown personally from this experience and how do you expect to use it in the future?" In general, the experience provided the opportunity for the students to grow personally. It made them reflect on their personal lives and things that they can do to make a difference in their

community. A student stated that "This experience has made me grow not only as a person but also as a learner. The trip has increased my ability to understand new ideas, concepts, and cultures." Secondly, "Did you experience any changes in your personal qualities or values during this experience? If so, how do you see those qualities and values contributing to your development?" All students reported that there was a change in their personal values. One stated, "I realized that there are a lot of things that most people take for granted that other people struggle to get."

They were also very impressed about how knowledgeable young Costa Rican children are on environmental issues. One student said, "I value small things in life a lot more than before. I practice sustainability and I have never been anywhere where the entire town or country practices it without issue. It was nice to hear children speak effortlessly about sustainability, climate change, and global warming." Another student said, "Some of these practices are things I have never seen before and it makes me want to be more proactive on the things I could change." Traveling to Costa Rica definitely influenced the students positively because it made them culturally aware of the differences and similarities in the different communities they visited. One student said, "I was able to compare certain aspects of interaction, communication, awareness, and sustainability to life in the U.S. I believe I will be making a few personal changes upon my return."

#### Familiarity with Agrotourism

The students were also asked, "If you had any pre-conceived notions about Costa Rica's agrotourism and agroforestry programs, how have these beliefs been impacted by your visit?" Most of them had never heard about agrotourism. This study abroad experience provided the students with the opportunity to learn about the topic. A student stated, "Before coming here I had never heard of agrotourism so leaning about this was new information. I really like being able to discuss a concept and then actually go out and see it. It was amazing."

### Benefits of Travel Abroad Programs

We wanted to know if other students would benefit from the program, and what areas are most beneficial so we asked, "What aspects of your international experience do you think other students could learn from?" All of the students thought that it would be beneficial for other students to learn about all the aspects they were exposed to, including sustainable development, agroforestry, climate change/environmental health issues, community engagement, and energy conservation. Some students said, "Different countries deal with different problems around agriculture and have different methods of solving the problem" and others indicated, "The use of integrated system(s) when producing agricultural product(s); for example, live fences and intercropping is essential."

#### **Educational Development**

It is the belief of the authors that travel abroad and experiential learning helps improve students' educational development but we wanted to get the students' perspectives on the topic. We asked, "How will you use this Costa Rican experience to strengthen your educational development?" All the students believed that the travel abroad experience will strengthen their educational development. The program provided the students with hands-on experience and allowed them to think critically. It also made the students more culturally sensitive to people of

different cultures and backgrounds. A student stated, "Taking this knowledge back to the United States will help me understand cultural differences and practices and why we should be educated on different cultures."

#### Challenges and Opportunities

The researchers wanted to know if students encountered unique challenges/opportunities while in Costa Rica, so we asked, "What challenges or opportunities did you find while on this international experience?" The main challenge was the language barrier and the ability to communicate with the Costa Rican people. A few students complained about the differences in the food. However, all of the students thought that the opportunities they were exposed to were endless. Due to this travel experience, one of the student has decided to serve the U.S. by volunteering for the Peace Corps. The student said, "I think the best opportunity was speaking to farmers and students, and random people stopped to tell us about themselves in the Town of Turrialba. I appreciate the opportunity to do small volunteer work as well. I have had a hard time deciding if I want to do international work but I think I have decided to do[join the] Peace Corps."

#### **Pre-Trip Travel Materials**

The researchers wanted to know if providing printed pre-trip travel materials was helpful, so we asked, "How valuable were the pre-trip reading materials and briefing?" It was very obvious that the main drawback of the study abroad trip was that most students did not have the pre-trip materials while others had very limited briefing about the trip. However, the pre-trip briefing was helpful to those who had it. A student commented, "I was not provided with any materials before the trip. I did not get the schedule till I was at the airport in Atlanta. I was very under-packed."

### **In-Country Instructors' Perceptions**

In addition, three in-country instructors' perceptions about the program were documented. All three thought that the students were engaged and eager to learn new concepts about how agriculture, natural resource, and environmental health, including sustainability are practiced in other countries. They did not notice any pronounced differences among students from the different universities. However, they suggested that the program directors should facilitate skype meetings to allow future program participants to get acquainted before embarking on the journey.

## Conclusion

The study abroad program was an excellent avenue for students to learn new concepts about everyday topics in agriculture, natural resources, and environmental health that they might not have been previously aware. It exposed the students to endless opportunities that will be helpful to them during the course of their lives. It also provided them with a global perspective of agriculture, sustainability and community involvement. The students agreed that the program will help them to be tolerant to other worldviews, concerned for the welfare of the world, and interested in world events. The program will be beneficial to other students who are interested in thinking critically about how to ease or solve agriculture, natural resources, and environmental problems in the U.S. in particular and in the world in general.

Based on the results, six recommendations are made. First, future students should be provided with information about the country of study weeks before departure dates. Second, organizers

should solicit assistance from past student participants on the necessary packing list. Third, future students could be paired with students in in-country collaborating institutions to help navigate countries where English is not the official language, such as Costa Rica. Fourth, it will be necessary in the future to obtain background information of student participants (dietary restriction and medication) to enable program prepare adequately for special cases. Fifth, pre-departure meetings should be organized for participants to get to know each other before the trip. Sixth and final, past student participants should be invited to talk to future participants so that students will get the information from a student's perspective.

## **Appendix**

#### **Student Survey**

- 1. Did this study abroad experience meet your expectations? Explain how.
- 2. How have you grown personally from this experience and how do you expect to use it in the future?
- 3. Did you experience any changes in your personal qualities or values during this experience? If so, how do you see those qualities and values contributing to your development?
- 4. Traveling abroad to Costa Rica allowed you to meet new people, experience a new language, and new environments and new eco challenges. How did these factors affect you?
- 5. If you had any pre-conceived notions about Costa Rica's agrotourism and agroforestry program, how have these beliefs been impacted by your visit?
- 6. What aspects of your international experience do you think other agriculture students could learn from?
- 7. How will you use this Costa Rican experience to strengthen your educational development?
- 8. What challenges or opportunities did you find while on this international experience?
- 9. How valuable were the pre-trip reading materials and briefing?

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